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March 23, 2017

VIA CERTIFIED MAIL

Mayor Ed Murray  
City of Seattle  
600 4th Ave.  
7th Floor  
Seattle, WA 98104

Re: Clean Water Act Notice of Intent to Sue/60-Day Notice Letter  
City of Seattle Violations of Clean Water Act and Combined-Sewer  
Permit, MS4 Permit, and Construction General Permit

Dear Mayor Murray:

On behalf of the Monsanto Company, Pharmacia LLC, and Solutia, Inc. (collectively, the "Claimants"), we hereby provide notice of the Claimants' intent to sue the City of Seattle ("City" or "Seattle") for ongoing violations of the Federal Water Pollution Control Act (the "Clean Water Act" or "Act"), 33 U.S.C. §§ 1251 *et seq.*; National Pollutant Discharge Elimination System ("NPDES") Waste Discharge Permit No. WA0031682 (the "Combined-Sewer Permit");<sup>1</sup> the Phase I Municipal Stormwater Permit (the "MS4 Permit");<sup>2</sup> and the Construction Stormwater General Permit ("Construction General Permit").<sup>3</sup> This letter constitutes a Notice of Violation and Intent to File Suit ("Notice Letter") against the City under Section 505 of the Clean Water Act, 33 U.S.C. § 1365.

Seattle discharges storm water and wastewater that contain a host of pollutants—

<sup>1</sup> Ex. 1, Washington State Department of Ecology, NPDES Waste Discharge Permit No. WA0031682 (Mar. 30, 2016), [https://www.seattle.gov/Util/cs/group/s/public/@spu/@usm/documents/webcontent/01\\_016854.pdf](https://www.seattle.gov/Util/cs/group/s/public/@spu/@usm/documents/webcontent/01_016854.pdf).

<sup>2</sup> Ex. 2, Washington State Department of Ecology, Phase I Municipal Stormwater Permit (Aug. 1, 2012), <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/2016Mod/2016phaseIpermit.pdf>.

<sup>3</sup> Ex. 3, Washington State Department of Ecology, Construction Stormwater General Permit (Nov. 18, 2015), <http://www.ecy.wa.gov/programs/wq/stormwater/construction/permit.html>.

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including bacteria, metals, and toxic chemicals—that can degrade water quality in surrounding waterbodies. For example, the Washington State Department of Ecology (“Ecology”) has identified waterbodies in and surrounding Seattle as water-quality impaired for polychlorinated biphenyls (“PCBs”). Seattle has discharged and continues to discharge PCBs into its water bodies at levels that are materially higher than the water quality criteria for PCBs under the Clean Water Act. Notable examples of these discharges include the following:

- Seattle discharges PCB-laden storm water and combined-sewer overflows. The City has an antiquated combined-sewer system that, when it rains, discharges a mixture of raw, untreated sewage and storm water. The combined-sewer overflows (“CSOs”) contain many pollutants, including PCBs. Similarly, the City generates large volumes of storm water that discharge from its municipal separate storm sewer system (“MS4”) to nearby waterways. Seattle has generally failed to monitor its storm water discharges adequately, but available sampling shows levels of PCBs that are higher than relevant water-quality standards.
- Seattle discharges PCBs during renovation and demolition of aging buildings, and fails to control the discharge of permittees. When remodeling or demolishing aging buildings, Seattle fails to implement best management practices (“BMPs”) that would prevent discharges of PCBs—even though this renovation and demolition are a source of PCBs into waterways, Ecology has recommended BMPs, and the United States Environmental Protection Agency (“EPA”) requires such BMPs in its federal Construction General Permit. Similarly, though the City requires land owners in its jurisdiction to obtain permits before remodeling or demolishing a building, it fails to condition such permits with BMPs to prevent the mobilization and discharge of PCBs.
- Seattle uses PCB-containing products and discharges them to waterways directly and through storm water. Seattle uses products—including deicer, hydroseed, and asphalt sealant—that are known to contain inadvertently generated PCBs at levels materially higher than water quality criteria allow. The City discharges these products directly into nearby waterways, and applies them to roadways, construction sites, and other areas where they discharge during storms.

These discharges are causing and contributing to exceedances of water quality standards and objectives in receiving waters. Any violation of the Combined-Sewer Permit, the MS4 Permit, or the Construction General Permit constitutes a violation of the Clean Water Act, its regulations, and the State of Washington Water Pollution Control Law and is grounds for an enforcement action. *See* 40 C.F.R. § 122.41(a).

Pursuant to Section 505 of the Clean Water Act, “any citizen may commence a civil action on his own behalf” against any governmental instrumentality that is “alleged to be in violation of (A) an effluent standard or limitation under [the Act] or (B) an order issued by the Administrator or a State with respect to such a standard or limitation.” 33 U.S.C. §§ 1365(a). The Clean Water Act confers jurisdiction to federal courts to enforce such standards, limitations, and orders, and to apply appropriate civil penalties under 33 U.S.C. §§ 1319(d) & 1365(a).

Section 505(b) of the Act, 33 U.S.C. § 1365(b), requires a citizen to give notice of the alleged violations and his or her intent to sue 60 days before initiating a civil action under Section 505(a) of the Act, 33 U.S.C. § 1365(a). The City is formally placed on notice that following 60 days from the date of this Notice Letter, the Claimants intend to amend their counterclaims against the City of Seattle in the Action<sup>4</sup> to include citizen enforcement claims under the Clean Water Act. Notice is also being given to the Chief Administrative Officer of the water pollution control agency (Ecology) for Washington, the Administrator of the EPA, and the appropriate Regional Administrator of the EPA. 40 C.F.R. § 135.2(a).

## **I. FACTUAL BACKGROUND**

### **A. The City’s CSO and Storm Water Discharges Include PCBs and Many Other Pollutants**

The City maintains hundreds of miles of separated storm drain and sanitary sewer systems, partially separated systems, and a combined-sewer system.<sup>5</sup> Seattle maintains nearly 1,000 miles of a combined-sewer system—that is a system that conveys both storm water and raw, untreated sewage. Seattle discharges these pollutants into adjacent waterbodies through 86 outfalls.<sup>6</sup>

The combined-sewer overflows that Seattle discharges are a noxious brew of storm water and untreated, raw sewage. Among other things, they carry PCBs at levels materially higher than water quality standards allow. For example, in 2013, King County prepared a report for the EPA estimating the loading of PCBs and polybrominated diphenylethers (“PBDEs”) in the

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<sup>4</sup> On January 25, 2016, the City filed a lawsuit against the Claimants in United States District Court, Western District of Washington, captioned *City of Seattle v. Monsanto Company, et al.*, Case No. 2:16-cv-00107-RSL (the “Action”). The presence of PCBs that the City has discharged into the State’s waterways in violation of the Clean Water Act and Clean Water Act permits is a substantial cause of the City’s suit against the Claimants, and also creates various forms of contingent liability for the Claimants. As a result, the City’s violations of the Clean Water Act have injured and are injuring the Claimants—who have incurred costs substantially caused by the City’s violations. Thus, the interests of the Claimants have been, are being, and will continue to be adversely affected by the City’s failure to comply with the Clean Water Act.

<sup>5</sup> Ex. 4, Ecology, Fact Sheet for NDPES Permit WA0031682 – City of Seattle’s Combined Sewer System 7 (Feb. 18, 2016), [https://www.seattle.gov/util/cs/groups/public/@spu/@usm/documents/webcontent/01\\_016855.pdf](https://www.seattle.gov/util/cs/groups/public/@spu/@usm/documents/webcontent/01_016855.pdf).

<sup>6</sup> *Id.*

greater Lake Washington watershed. It found that combined-sewer overflows had an average PCB concentration of 100 nanograms/liter.<sup>7</sup> This is equivalent to 100,000 parts per quadrillion (“ppq”)—materially higher than Washington’s own criteria. Even the lowest concentration of PCBs found in combined-sewer overflows (2,300 ppq) materially exceeded the water quality standard.<sup>8</sup>

Storm water samples had PCB levels averaging 5.1 nanograms/liter, or 5,100 ppq—materially higher than Washington’s own water quality standard.<sup>9</sup>

#### B. Enforcement Action Against the City for CSOs

In 2013, EPA and Ecology sued the City over its frequent overflows of raw sewage—including approximately 200 million gallons annually between 2007-2010—and discharge of pollutants into eight waterbodies in violation of the City’s Clean Water Act permits.<sup>10</sup> The complaint alleged that the City’s failure to comply with its permits “caused releases of raw sewage from sewer pipes, manholes, pump stations and other ‘facilities’ in the City’s Wastewater Collection System onto public and private property.”<sup>11</sup>

The City of Seattle entered into a consent decree with the EPA and Ecology in April of 2013. The consent decree has a number of components, but it largely requires Seattle to reduce its combined-sewer overflows and to take measures—like eliminating dry-weather combined-sewer overflows—that Seattle was legally required to undertake decades ago.<sup>12</sup>

The consent decree is not a free pass for the City to continue to violate the Clean Water Act during the consent decree’s term. The decree states explicitly that compliance with the decree is not equivalent to compliance with the Clean Water Act or federal, state, or local laws, regulations and permits.<sup>13</sup> And the consent decree explicitly provides that the City remains responsible for “compliance with the terms of the [Clean Water Act] and its implementing regulations, applicable state law and regulations, its NPDES Permit, [and] all orders issued by

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<sup>7</sup> Ex. 5, King County Department of Natural Resources and Parks, PCB/PBDE Loading Estimate for Greater Lake Washington Watershed 17 (Sept. 2013), <http://your.kingcounty.gov/dnrp/library/water-and-land/watersheds/cedar-river-lake-wa/lake-washington-pcb-pbde-loadings/pcb-pbde-loading-estimates-sept2013.pdf>.

<sup>8</sup> *Id.*

<sup>9</sup> *Id.* at 15.

<sup>10</sup> Ex. 6, EPA, Press Release Regarding Consent Decree (Apr. 16, 2013).

<sup>11</sup> Ex. 7, Complaint, *U.S. EPA v. City of Seattle*, No. 2:13-cv-678, at ¶ 56 (Apr. 16, 2013).

<sup>12</sup> Ex. 8, Consent Decree, *U.S. EPA v. City of Seattle*, No. 13-cv-678, at ¶ 60 (Apr. 16, 2013); Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688 (Apr. 19, 1994) (prohibiting dry-weather combined-sewer overflows).

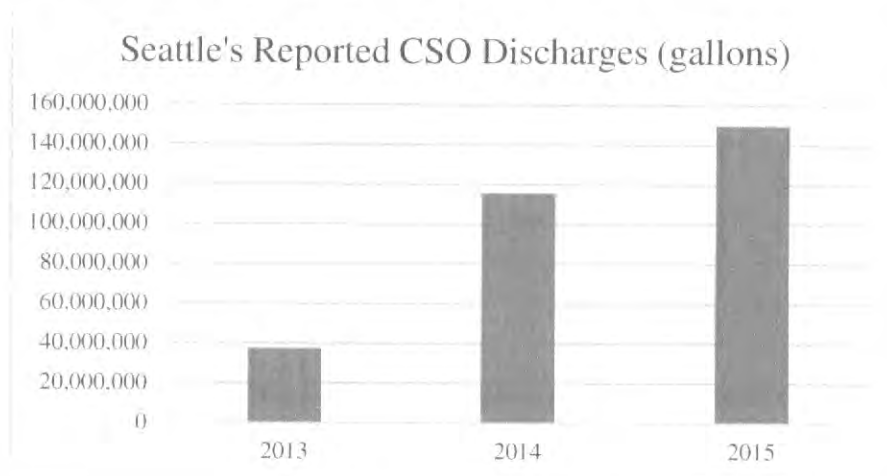
<sup>13</sup> Ex. 8, Consent Decree, *U.S. EPA v. City of Seattle*, No. 13-cv-678, at ¶¶ 93, 98 (Apr. 16, 2013).



the State ....<sup>14</sup> The decree does not limit the right of third parties to bring action against the City.<sup>15</sup>

### C. The City's Violation of Its Consent Decree

Despite the consent decree, Seattle continues to discharge millions of gallons of untreated storm water and sewage through CSOs. By Seattle's own account, discharges have increased each year since 2013. Figure 1, below, shows this trend.<sup>16</sup>



**Figure 1. Seattle's reported CSO discharges.**

The picture for CSO discharges to specific waterways is equally grim. For example, Seattle reports that its CSO discharges to the Duwamish River increased from 11,507 gallons in 2013, to 146,654 gallons in 2014, to 1,056,402 gallons in 2015.<sup>17</sup> Likewise, dry-weather overflows—the discharge of raw, untreated sewage when it is not raining—continue to be a problem. The City had three such overflows in 2013, one in 2014, and three in 2015.<sup>18</sup>

<sup>14</sup> *Id.* at ¶ 93.

<sup>15</sup> *Id.* at ¶ 99.

<sup>16</sup> Ex. 9, Seattle Public Utilities, Wastewater Collection System: 2015 Annual Report 5-87 (Mar. 28, 2016), [http://www.seattle.gov/util/cs/groups/public/@spu/@drainsew/documents/w ebcontent/1\\_050699.pdf](http://www.seattle.gov/util/cs/groups/public/@spu/@drainsew/documents/w ebcontent/1_050699.pdf).

<sup>17</sup> *Id.* at 5-88.

<sup>18</sup> *Id.* at 3-14.

These dry-weather overflows, additional sewer overflows, and reporting violations have prompted the EPA and Ecology to seek stipulated penalties under the consent decree for Seattle's violations in 2014 and 2015 (the two years for which Seattle has filed annual reports).<sup>19</sup>

While Seattle has not yet filed an annual report for 2016, its violations continue apace. It reports dry-weather combined-sewer overflows occurred in both April and May of 2016.<sup>20</sup> Similarly, Seattle continues to have large numbers of combined-sewer overflows during wet weather—it reports in its discharge monitoring reports approximately 312 separate combined-sewer discharges, totaling approximately 85 million gallons.<sup>21</sup>

The City has also continued to discharge pollutants into receiving waters from its separate-sewer system. Since the City entered into the 2013 consent decree, the number of separate-sewer overflows has actually increased. Not counting overflows caused by events the City considers beyond its ability to control (such as extreme weather or vandalism), there were 40 such overflows in 2013, 36 overflows in 2014, and 72 overflows in 2015.<sup>22</sup> In 2015, six such overflows were primarily caused by outright maintenance errors.<sup>23</sup> In addition, at least 26 were primarily caused by factors that can be prevented with proper maintenance—accumulation of plant roots (18 overflows), debris (4 overflows) and fats/oils/greases (4 overflows).<sup>24</sup>

The United States and Washington State both previously recognized the inadequate maintenance of the sewer systems by the City. In their complaint against the City, they alleged that the “City has failed to comply with the Proper Operation and Maintenance condition” of their permit, and specifically identified “blockages in sewer pipes caused by grease, debris, and/or roots” as a major part of the alleged violations.<sup>25</sup> But despite its commitments under the 2013 consent decree, separate-sewer overflows caused by inadequate maintenance have actually risen, in further violation of the City's obligations under the Clean Water Act.

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<sup>19</sup> Ex. 10, Letter from Kevin Fitzpatrick, Ecology, to Nancy Ahern, City of Seattle (Feb. 9, 2015) (demanding payment of penalties for Seattle's violation of consent decree for two sewer overflows); Ex. 11, Letter from Kevin Fitzpatrick, Ecology, to Susan Sanchez, City of Seattle (Nov. 2, 2015) (demanding payment of penalties for Seattle's violation of consent decree for two sewer overflows, one dry-weather CSO, and a reporting violation); Ex. 12, Letter from Heather Bartlett, Ecology, to Madeline Goddard, City of Seattle (Nov. 21, 2016) (demanding payment of penalties for Seattle's violation of consent decree for seven sewer overflows, two dry-weather CSOs, and a reporting violation).

<sup>20</sup> Ex. 13, City of Seattle, April 2016 Combined Sewer Overflow Discharge Monitoring Report (May 27, 2016); Ex. 14, City of Seattle, May 2016 Combined Sewer Overflow Discharge Monitoring Report (June 28, 2016).

<sup>21</sup> Ex. 15, Summary of Seattle's Discharge Monitoring Reports for 2016.

<sup>22</sup> Ex. 9, Seattle Public Utilities, *supra* note 16, at 3-25 (2016).

<sup>23</sup> *Id.* at 3-24.

<sup>24</sup> *Id.* at 3-24.

<sup>25</sup> Ex. 7, Complaint, *U.S. EPA v. City of Seattle*, No. 2:13-cv-678, at ¶ 56 (Apr. 16, 2013).

#### D. The City's Discharge of PCBs Through Building Renovation and Demolition

Before 1979, when their manufacture was banned under the Toxic Substances Control Act ("TSCA"), PCBs were lawfully manufactured by a number of companies around the world. These PCBs were used in a variety of products, including electrical equipment, lamp ballasts, building materials, caulk, and paint.

According to Ecology, "[l]evels of PCBs in the environment are mostly declining."<sup>26</sup> As the EPA has explained, buildings built or renovated from about 1950 to 1980 may have PCBs in building materials.<sup>27</sup> As a result, the EPA found that "[w]ithout proper controls, the demolition of such structures can cause PCBs to be released into the environment and discharged into waters of the U.S. during storm events."<sup>28</sup>

Because renovating and demolishing buildings is a potential pathway for releasing PCBs into the environment and into waters of the United States, at least as early as July 2014, Ecology recommended developing BMPs for demolition and renovation of buildings.<sup>29</sup> Similarly, in the federal Construction General Permit, the EPA requires permittees who are demolishing structures with at least 10,000 square feet of floor space that were built before 1980 to implement BMPs if their construction storm water will discharge into PCB-impaired waterbodies.<sup>30</sup> These BMPs can include measures like constructing containment and decontamination areas, sealing off vents during construction, covering scaffolding sides in plastic, and selecting tools that minimize dust and heat.<sup>31</sup>

Seattle is a significant property owner and lessor in its own right. The City reports conflicting statistics, but it owns or leases hundreds of buildings constituting millions of square feet.<sup>32</sup> Some portion of these buildings were constructed or renovated between 1950 and 1980, which makes them particularly likely to contain building materials with high levels of PCBs.

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<sup>26</sup> Ex. 16, Ecology, PCB Chemical Action Plan 12 (Feb. 2015), <https://fortress.wa.gov/ecy/publications/SummaryPages/1507002.html>.

<sup>27</sup> Ex. 17, EPA, 2017 Construction General Permit (CGP) – Fact Sheet 55 (2017), [https://www.epa.gov/sites/production/files/2017-01/documents/2017\\_cgp\\_final\\_fact\\_sheet.pdf](https://www.epa.gov/sites/production/files/2017-01/documents/2017_cgp_final_fact_sheet.pdf).

<sup>28</sup> *Id.* at 54.

<sup>29</sup> Ex. 18, Ecology, Draft PCB Chemical Action Plan 59, 159, 160 (July 2014), <https://fortress.wa.gov/ecy/publications/publications/1407024.pdf>.

<sup>30</sup> Ex. 17, EPA, *supra* note 27, at 54-55.

<sup>31</sup> *Id.* at 57-58.

<sup>32</sup> Ex. 19, Seattle Office of Sustainability & Environment, City Facilities (reporting that the City "owns and maintains over 650 buildings totaling approximately 10 million square feet and each year new facilities are added or old ones remodeled."), <http://www.seattle.gov/environment/buildings-and-energy/city-facilities>; Ex. 20, City of Seattle Finance and Administrative Services, 2014 Annual Real Property Report 2 (May 23, 2014)

Despite this, the City appears to have no law or even guidance that requires it to take basic measures such as surveying older buildings for PCBs and implementing BMPs specific to PCBs before it renovates or demolishes them. For example, the City's Sustainable Building and Sites Policy governs the construction, maintenance, and decommissioning of City buildings.<sup>33</sup> While it contains a number of admirable goals, despite explicit agency recommendations otherwise, it contains no measures to prevent the mobilization of PCBs when the City renovates or demolishes properties.

Even more significantly, the City is the land-use regulator for its jurisdiction. Property owners typically need a permit from the City to renovate or demolish a building.<sup>34</sup> Yet the municipal code has no requirement that the owners of such buildings take basic precautions—including surveying and implementing BMPs—to prevent the mobilization and discharge of PCBs. As the EPA has indicated, these PCBs can be feasibly managed consistent with EPA regulatory requirements.<sup>35</sup> But the City does not so require.

Similarly, while the City's Stormwater Code is prescriptive and detailed, it does not require building owners to take even basic steps of surveying for PCBs and implementing BMPs to prevent the mobilization of PCBs when they renovate or demolish a building built before 1980.<sup>36</sup> Likewise, the City's Stormwater Manual notes that the use and disposal of PCBs is regulated by state and federal law.<sup>37</sup> But it includes no requirements—like those the EPA has mandated in the federal Construction General Permit—to impose best management practices specific to PCBs for demolition or remodeling projects.

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(listing the City as having 1,335 buildings in its inventory),  
[http://clerk.seattle.gov/~public/meetingrecords/2014/finance20140605\\_2a.pdf](http://clerk.seattle.gov/~public/meetingrecords/2014/finance20140605_2a.pdf).

<sup>33</sup> Ex. 21, City of Seattle, Sustainable Building and Sites Policy (Aug. 19, 2011), <http://www.seattle.gov/environment/buildings-and-energy/city-facilities/sustainable-buildings-and-sites>.

<sup>34</sup> Ex. 22, Seattle Department of Construction and Alterations, Construction Permit – Addition or Alteration, <http://www.seattle.gov/dpd/permits/permittypes/constructionaddalt/default.htm>; Ex. 23, Seattle Department of Construction and Alterations, Demolition Permit – Building, <http://www.seattle.gov/dpd/permits/permittypes/demolitionbuilding/default.htm>.

<sup>35</sup> See, e.g., EPA, Polychlorinated Biphenyls (PCBs) in Building Materials, <https://www.epa.gov/pcbs/polychlorinated-biphenyls-pcbs-building-materials>.

<sup>36</sup> Seattle, Wash. Mun. Code § 22.800.010 *et seq.* (2017), [https://www.municode.com/library/wa/seattle/codes/municipal\\_code](https://www.municode.com/library/wa/seattle/codes/municipal_code).

<sup>37</sup> Seattle Public Utilities, City of Seattle Stormwater Manual, Volume 2: Construction Stormwater Control 5-20 (Jan. 2016), <http://www.seattle.gov/dpd/codesrules/codes/stormwater/>.



#### E. The City's Use of PCB-Containing Products

The TSCA regulations include an exemption allowing for products that contain PCBs that are inadvertently generated at levels of up to 50 parts per million.<sup>38</sup> PCBs continue to be generated as by-products of various routine manufacturing and chemical processes, including the production of dyes. The EPA has estimated that 100,000 pounds of "inadvertently generated" PCBs are produced annually in the United States, and Ecology recently determined that roughly half of all annual releases of PCBs in Washington are actually "current generation" PCBs, produced after 1979.<sup>39</sup>

Products that can contain PCBs in concentrations higher than water quality standards include road and utility paints, firefighting foam, deicers, motor oil, dirt road dust suppressant, crack sealer, hydroseed, PVC pipe, and thermoplastic tape road striping, among others.<sup>40</sup> As shown in the table below, the levels of PCBs in certain products commonly used by municipalities can be materially higher than Washington's water quality standard.<sup>41</sup>

Select Maximum PCBs Concentrations in Products Tested by the City of Spokane	
Product	PCBs level in product (ppq)
Yellow road paint	64,880,000
Asphalt crack sealer	7,975,000
Motor oil	969,000
Deicer	1,332,000
Hydroseed	2,509,088,000

The City of Seattle uses (or requires others to use) all of the above types of products that are likely to contain inadvertently generated PCBs:

- Traffic paint. As of 2010, Seattle reports having 3,952 lane-miles of roads, including 1,540 lane miles of arterials.<sup>42</sup> It is unknown how much road paint the

<sup>38</sup> Ex. 16, Ecology, *supra* note 26, at 59.

<sup>39</sup> *Id.* at 14, 60.

<sup>40</sup> Ex. 24, City of Spokane Wastewater Management Department, PCBs in Municipal Products (revised July 21, 2015) at Table B-1, <https://www.spokanecounty.org/DocumentCenter/View/3407>.

<sup>41</sup> *Id.*

<sup>42</sup> Ex. 25, Seattle Department of Transportation, Pavement Management, <https://www.seattle.gov/transportation/pavementmanagement.htm>.

City applies every year, but it is material. By way of comparison, the Washington Department of Transportation calls for painting its highways every year and assumes between 16.4 and 98.3 gallons of paint per mile for a continuous four-inch line.<sup>43</sup> It is known that storm water carries the chemicals in traffic paint to nearby waterbodies when it rains.<sup>44</sup>

- Asphalt sealant. The City has an ambitious program of applying crack sealant to Seattle roadways to prevent their deterioration.<sup>45</sup> Since 2013 the City has applied sealant to the surface (not just cracks) of approximately 145 lane miles of roadways.<sup>46</sup>
- Deicer. In wintery weather, Seattle applies deicer to its roadways. The Seattle Department of Transportation reports that it uses magnesium chloride salt—like the chemical deicer found to contain PCBs by the City of Spokane.<sup>47</sup> In a recent winter storm, the City reports using “a lot (lot) of salt.”<sup>48</sup>
- Motor oil. Seattle reports that it has a fleet of over 4,000 vehicles.<sup>49</sup> Ecology reports that motor oil from leaking cars is one of the greatest contributors to storm water pollution.<sup>50</sup>
- Hydroseed. Seattle’s storm water control manual calls for applying hydroseed mulch on construction sites at high volumes—1,500 pounds per acre.<sup>51</sup> One study

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<sup>43</sup> Ex. 26, Washington Department of Transportation, Maintenance Manual 8-7 to 8-8 (Aug. 2013), <http://www.wsdot.wa.gov/Publications/Manuals/M51-01.htm>.

<sup>44</sup> Ex. 27, Ecology, Lead and Other Metals in Traffic Paint in Washington State 2 (May 2015) (“Stormwater can carry paint and its constituents into fresh and marine waters.”), <https://fortress.wa.gov/ecy/publications/documents/1504018.pdf>.

<sup>45</sup> Ex. 28, Seattle Department of Transportation, Crack Sealing in Seattle, <http://www.seattle.gov/transportation/crackseal.htm#current>.

<sup>46</sup> Ex. 29, Seattle Department of Transportation, SDOT’s Microsurfacing Program, <http://www.seattle.gov/transportation/Microsurfacing.htm>.

<sup>47</sup> Ex. 30, Seattle Department of Transportation, Surviving Seattle Snow with Plows, Plants, and a Lot of Salt (Dec. 9, 2016), <http://sdotblog.seattle.gov/2016/12/09/surviving-seattle-snow-with-plows-plans-and-a-lot-of-salt/> (last visited Feb. 27, 2017).

<sup>48</sup> *Id.*

<sup>49</sup> Seattle Finance & Administrative Services Department, Active Fleet Complement (2016), available at <http://www.seattle.gov/fleets/cityfleet>.

<sup>50</sup> Ex. 31, Ecology, Car Maintenance, [http://www.ecy.wa.gov/washington\\_waters/cars.html](http://www.ecy.wa.gov/washington_waters/cars.html).

<sup>51</sup> Seattle Public Utilities, City of Seattle Stormwater Manual, Volume 2: Construction Stormwater Control 4-2 to 4-4 (Jan. 2016), <http://www.seattle.gov/dpd/codesrules/codes/stormwater/>.

in Washington State found that dyes in hydroseed mixes are particularly likely to contain PCBs and recommended that the state consider dye-free hydroseed applications.<sup>52</sup> The City nonetheless requires the use of green dye in wood-fiber mulch used for hydroseeding projects.<sup>53</sup> PCBs in hydroseed are known to enter storm water and reach receiving waters.<sup>54</sup>

By failing to test for—and to discontinue use of—products containing inadvertently generated PCBs, the City is guaranteeing that it will discharge PCBs into its waterways.<sup>55</sup>

#### **F. The City's Failure to Cease Purchasing PCB-Containing Products**

Though PCBs are known to be contained in products used by municipalities at levels far exceeding the water-quality standard under the Clean Water Act, Seattle has not taken effective measures to end its own use of such products. Rather, in 2002, the City Council adopted Resolution 30487, which allows the City to continue to use products containing PCBs, including inadvertently generated PCBs.<sup>56</sup>

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<sup>52</sup> Ex. 32, Spokane River Regional Toxics Task Force, Hydroseed Pilot Project Summary Report 8 (July 31, 2015), <http://srtrtf.org/wp-content/uploads/2015/03/Hydroseed-Pilot-Project-Report-FINAL.pdf>.

<sup>53</sup> Seattle Public Utilities, City of Seattle Stormwater Manual, Volume 2: Construction Stormwater Control 4-7 (Jan. 2016), <http://www.seattle.gov/dpd/codesrules/codes/stormwater/>.

<sup>54</sup> Ex. 33, EPA's Plan for Addressing PCBs in the Spokane River 9-10 (July 14, 2015), <http://srtrtf.org/wp-content/uploads/2015/07/EPA-plan-for-PCBs-in-response-to-court-order.pdf>.

<sup>55</sup> In addition to using products containing inadvertently generated PCBs, the City itself uses products containing intentionally generated PCBs. The City's current Electrical Code, passed on September 29, 2014, expressly authorizes the installation and use of Askarel-filled transformers, consistent with Federal law which also allows PCBs in such transformers. See National Fire Protection Association, National Electric Code (2014) at Article 100 (defining Askarel), § 450.25 (allowing Askarel-insulated transformers rated under 35,000 volts to be installed indoors without a vault), <http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=70>; Ex. 34, City of Seattle, Ordinance No 124593 (Sept. 29, 2014) at 1 (City adopting National Electric Code with modifications), 156 (no modifications to section 450.25),

[http://clerk.seattle.gov/~legislativeItems/Ordinances/Ord\\_124593.pdf](http://clerk.seattle.gov/~legislativeItems/Ordinances/Ord_124593.pdf). Indeed, the City encourages the installation and use of Askarel-filled transformers by providing that such transformers rated at under 35,000 volts may be installed indoors without the added burden and expense of installing a fire-resistant vault, even though such vaults are required for the indoor installation of other types of transformers. Thus, the City recognizes, as does the Federal Government, that PCB fluids in transformers play a very important safety role as a fire retardant.

<sup>56</sup> Ex. 35, Seattle City Council, A Resolution Relating to Persistent, Bioaccumulative, Toxic Chemicals (PBTs) (July 1, 2002), <http://clerk.seattle.gov/~scripts/nph->

The resolution requires the City merely to “consider the presence of PBTs [persistent bioaccumulative toxic chemicals] and the potential for their release” in its purchasing decisions.<sup>57</sup> But the resolution requires no testing of products to determine whether they contain PCBs. And it contemplates that the City could “consider” phasing out the use of products that contain PCBs only if the alternative is “economically feasible”—a term the resolution defines to mean within 10% of the cost of the product containing PCBs. In other words, the resolution does not require the City to stop using products containing PCBs at all—even products like hydroseed and road paint that are likely to be discharged to waterbodies—and the City need not even consider using alternative products if their cost would be a mere 10% higher.<sup>58</sup>

## II. STATUTORY BACKGROUND

### A. The Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act of 1948 to remedy the historically unchecked degradation of the Nation’s waters. Congress set forth the Clean Water Act’s primary objective to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a); *Arkansas v. Oklahoma*, 503 U.S. 91, 101 (1992). The introductory sections of the Act established the ambitious goal of eliminating the discharge of pollutants into navigable waters by 1985, and an interim goal of achieving fishable and swimmable conditions, wherever possible, by 1983. 33 U.S.C. §§ 1251(a)(1-2). Congress amended the Clean Water Act in 1987 to make clear that storm water runoff was a national concern and was to be regulated by the Act. *See* 33 U.S.C. § 1342.

The Clean Water Act prohibits the discharge of any pollutant by any person except in compliance with enumerated sections of the Act. 33 U.S.C. § 1311(a). As such, the discharge of pollutants into waters of the United States is allowed only pursuant to an NPDES permit issued by the EPA or by an EPA-delegated State-permitting authority, such as Ecology. *Id.* Discharging pollutants without a permit is a strict-liability offence, and neither knowledge by the discharger nor environmental harm must be shown to establish a violation. *Hawai’i Wildlife Fund v. County of Maui*, 24 F. Supp. 3d 980, 997 (D. Haw. 2014).

Section 402(p) of the Clean Water Act establishes a framework for regulating municipal and industrial storm water discharges under the NPDES scheme. 33 U.S.C. § 1342(p). NPDES permits issued for discharges from municipal storm sewers “require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices,

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<https://www.seattle.gov/city-purchasing-and-contracting/city-purchasing/green-purchasing/green-purchasing-policies>

<sup>57</sup> *Id.*

<sup>58</sup> The City’s policy on sustainable purchasing is similarly toothless—it contains no requirement that the City test for or stop using products containing inadvertently generated PCBs. Ex. 36, City of Seattle, City of Seattle Sustainable Purchasing Policy (Aug. 11, 2008), <https://www.seattle.gov/city-purchasing-and-contracting/city-purchasing/green-purchasing/green-purchasing-policies>.



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control techniques and system, design and engineering methods, and such other provisions as the Administrator . . . determines appropriate for the control of such pollutants.” *Id.*; see also 40 C.F.R. § 122.44(d)(1); *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1166 (9th Cir. 1999) (“EPA has the authority to determine that ensuring strict compliance with State WQS is necessary to control pollutants.”)

By regulation, the EPA has defined storm water associated with industrial activity for which an NPDES permit is required to include storm water from “[c]onstruction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre . . .” 40 C.F.R. § 122.26(b)(15).

Violation of permit issued under the Clean Water Act is a strict-liability offence. *United States v. STABL, Inc.*, 800 F.3d 476, 483 (8th Cir. 1015) (“Thus, without more, to violate a[n] NPDES permit is to violate the Act.”) (citing *Chesapeake Bay Found. v. Bethlehem Steel Corp.*, 608 F. Supp. 440, 451 (D. Md. 1985)).

#### B. Surface Water Criteria

Section 303(d) of the Act, 33 U.S.C. § 1313(d), requires the State to identify surface waters that do not meet applicable water quality standards even after the application of the technology-based effluent limitations required by Sections 301(b) and 306 of the Act. All EPA-delegated States, including Washington, are required under Clean Water Act Section 303(d) and federal regulation, 40 C.F.R. § 130.0, to prepare a list of and set priorities for water quality limited segments (also referred to as “impaired water bodies”).

The Clean Water Act also requires that the delegated State permitting authority ensure compliance with water quality standards in NPDES permits. See 33 U.S.C. § 1313(a). Water quality standards consist of the designated use of the water body (*e.g.*, water contact recreation or municipal drinking water) and the State water quality criteria or standards that must be met to maintain the designated use. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.3(i). Water quality criteria may be expressed numerically or with narrative descriptions of the required quality of water to support the designated use.<sup>59</sup> 40 C.F.R. § 131.3(b).

The surface water quality standards regulate, among other things, the amount of toxic substances that may be legally discharged into surface waters. Washington’s narrative standard for toxics states that “[t]oxic substances shall not be introduced above natural background levels . . . which have the potential . . . [to] cause acute or chronic toxicity to the most sensitive biota dependent upon those waters, or adversely affect public health . . .” WAC 173-201 A-240(1); see also WAC 173-201A-260(2)(a) (“Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health . . .”). PCBs fall within the scope of this regulation.

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<sup>59</sup> Washington’s surface water criteria are available at <http://www.ecy.wa.gov/programs/wq/swqs/criteria.html>.

### C. Seattle's Combined-Sewer Permit

The Washington State Water Pollution Control Act explicitly requires combined-sewer systems, such as Seattle's, to meet water quality standards:<sup>60</sup>

All CSO sites shall achieve and at least maintain the greatest reasonable reduction, and neither cause violations of applicable water quality standards, nor restrictions to the characteristic uses of the receiving water, nor accumulation of deposits which:  
(a) Exceed sediment criteria or standards; or (b) have an adverse biological effect.

The Clean Water Act similarly requires the City's combined-sewer overflows to comply with water quality standards.<sup>61</sup>

Accordingly, the Combined-Sewer Permit requires Seattle to implement a series of technology-based controls designed to meet water quality standards.<sup>62</sup> These include operating and maintaining the combined-sewer system to reduce the magnitude, frequency, and duration of combined-sewer overflows. But the permit also specifically requires the discharges to meet water-quality standards—that is, if Seattle's combined-sewer overflows comply with the technology-based standards but cause or contribute to violation of a water quality standard, then the City has violated the permit.<sup>63</sup>

In the fact sheet for the Combined-Sewer Permit, Ecology states that it presumes that the City is complying with water quality standards if it complies with the EPA's combined-sewer overflow control policy and state law and "Ecology determines that such presumption is reasonable based on characterization, monitoring, and modeling of the system, including consideration of sensitive areas."<sup>64</sup> That presumption has no application here for at least three reasons: (1) the City is not complying with the EPA's CSO control policy, which among other things prohibits dry-weather combined-sewer overflows;<sup>65</sup> (2) Ecology has not made a determination based on characterization, monitoring, and modeling of the system that the current technology-based controls—even if the City were actually complying with them—would meet water quality standards; and (3) available monitoring data show that the City's combined-sewer

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<sup>60</sup> WAC 173-245-015(1).

<sup>61</sup> 33 U.S.C. § 1342(q) (requiring compliance with EPA's 1994 combined-sewer overflow control policy); Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688, 18689 (Apr. 19, 1994) ("CSOs are point sources subject to NPDES permit requirements including both technology-based and water quality-based requirements of the [Clean Water Act].").

<sup>62</sup> Ex. 1, Ecology, *supra* note 1, § S2.

<sup>63</sup> *Id.* at § S1.

<sup>64</sup> Ex. 4, Ecology, *supra* note 5, at 19.

<sup>65</sup> Combined Sewer Overflow (COS) Policy, 59 Fed. Reg. 18688, 18689 (Apr. 19, 1994).

overflows are at levels that would cause or contribute to violation of water quality standards for PCBs.<sup>66</sup>

The Combined-Sewer Permit prohibits in their entirety dry-weather combined-sewer overflows.<sup>67</sup> The permit also requires the City to “[i]mmediately take action to stop, contain, and cleanup unauthorized discharges” and to report violations to Ecology.<sup>68</sup> The previous Combined-Sewer Permit contained similar requirements as the existing permit.<sup>69</sup>

Because the City’s sewage system discharges to treatment plants owned by King County, section S2.4 of the permit requires Seattle during wet-weather conditions to “deliver all flows to the treatment plants within the constraints of the capacity of the treatment plants”—in other words, the City cannot deliver more sewage to King County’s treatment plants than they have capacity to serve. Similarly, if a treatment facility (such as the King County plants to which Seattle discharges sewage) fails, Section G8 of the permit requires the City to “control production and/or all discharges” of pollutants until the treatment facility is restored or an alternative method of treatment is provided.

#### D. The MS4 Permit

The MS4 Permit authorizes the discharge of storm water to surface waters and to ground waters of the State from municipal separate storm sewer systems owned or operated by each Permittee covered under the permit. As the owner and operator of a large municipal separate storm sewer system, Seattle is a designated permittee. MS4 Permit, § S1.B.1. Section S4.A of the MS4 Permit prohibits the discharge of toxicants, including PCBs, to waters of the State that would violate any water quality standard. Section S4.B of the permit prohibits a discharge from the municipal separate storm sewer system that would violate Washington State surface water quality standards, ground water quality standards, sediment management standards, or human health-based criteria in the National Toxics Rule.

The Permittee is required to reduce discharges to the maximum extent practicable (“MEP”), and to use “all known, available, and reasonable methods of prevention, control and treatment (“AKART”) to prevent and control pollution to waters of the State of Washington.” MS4 Permit, §§ S4.C & D.

Violations of either Sections S4.A or S4.B require the permittee to notify Ecology in writing within 30 days of becoming aware, based on credible site-specific information, that a

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<sup>66</sup> Ex. 5, King County Department of Natural Resources and Parks, *supra* note 7, at 17, 53.

<sup>67</sup> Ex. 1, Ecology, *supra* note 1, § S1.

<sup>68</sup> *Id.* at §§ S4.G.1, S4.G.2.e.

<sup>69</sup> Ex. 37, Ecology, National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0031682 (Oct. 27, 2010), §§ S1 (dry-weather combined-sewer overflows prohibited; water quality standards must be met), S3.E.a, S3.E.5 (permittee must stop non-compliance and report it).

discharge from an MS4 owned by the permittee is “causing or contributing to a known or likely violation” of a water quality standard. MS4 Permit, § S4.F. Following notification, Ecology may require specific management practices to address the violation of WQS. *Id.*

The Claimants are informed and believe that the City has known since before 1999 that its storm water is laden with pollutants that can cause or contribute to water quality violations. In 1999, the City entered into a consent decree with the United States related to allegations that the City’s sewer and storm water discharges had contaminated Elliott Bay and the Duwamish River with multiple pollutants, including PCBs.<sup>70</sup>

#### E. The Construction General Permit

Operators undertaking the following activities are required to seek coverage under and to comply with the Construction General Permit: “Clearing, grading and/or excavation that results in the disturbance of one or more acres ... and discharges stormwater to surface waters of the State.” Construction General Permit, § S1.B.1.a. Additionally, subject to its conditions, the permit authorizes permittees to “discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State.” Construction General Permit, § S1.C.1.

The Construction General Permit prohibits discharges that “cause or contribute to a violation of surface water quality standards, ground water quality standards, sediment management standards, and human health-based criteria in the National Toxics Rule.” Construction General Permit, § S3.A (internal citations omitted). If a permittee complies with permit conditions, Ecology presumes that a permittee is complying with water quality standards unless monitoring data or “other site-specific information” demonstrates that a discharge causes or contributes to a violation. Construction General Permit, § S3.C. Before discharging storm water, a permittee “must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).” Construction General Permit, § S3.B.

Here, Seattle has site-specific information (Ecology’s reports) that demonstrates that, absent appropriate measures of the type EPA addresses in guidance and regulations, renovating or demolishing a building constructed before 1980 may mobilize PCBs and release them into the environment and cause or contribute to water quality violations.<sup>71</sup>

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<sup>70</sup> Ex. 38, Amended Consent Decree, *United States of America v. the City of Seattle*, No. C90-395WD, at Recitals C–E (Oct. 13, 1999).

<sup>71</sup> Ex. 16, Ecology, *supra* note 26, at 16, 58; see also Ex. 39, Spokane River Regional Toxic Task Force, Comprehensive Plan to Reduce Polychlorinated Biphenyls (PCBs) in the Spokane River, at 61 (2016).



### III. SEATTLE HAS VIOLATED THE COMBINED-SEWER PERMIT

#### A. **The City's Continued Dry-Weather Overflows Violate the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the Combined-Sewer Permit, §S1**

The CSO control policy that that EPA adopted in 1994 prohibited combined-sewer overflows in dry weather, and contemplated that cities with combined sewers would have implemented technology-based controls to eliminate such discharges by January 1, 1997.<sup>72</sup> Twenty years later, the City of Seattle continues to violate the Clean Water Act by discharging combined-sewer overflows in dry weather, including the following:<sup>73</sup>

- 2013—three dry-weather overflows totaling 123,670 gallons
- 2014—one dry-weather overflow totaling 4,767 gallons
- 2015—three dry-weather overflows totaling 77,598 gallons
- 2016—two dry-weather overflows totaling 113,349 gallons

These discharges violate the Clean Water Act and the Combined-Sewer Permit, which expressly prohibits such discharges. Combined-Sewer Permit § S1 (“The permit prohibits discharges not caused by precipitation events.”).

#### B. **The City's Continued Wet-Weather and Dry-Weather Overflows Violate the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the Combined-Sewer Permit, §§ S1, S4.G.1, S4.G.2.e.**

The City is required to meet water quality standards in its combined-sewer discharges. Combined-Sewer Permit § S1. But it is well-known that combined-sewer overflows, whether in wet weather or dry weather, are laden with pollutants. As the EPA stated in 1994 when it promulgated its combined-sewer overflow policy:<sup>74</sup>

CSOs often contain high levels of suspended solids, pathogenic microorganisms, toxic pollutants, floatables, nutrients, oxygen-demanding organic compounds, oil and grease, and other pollutants. CSOs can cause exceedances of water quality standards (WQS). Such exceedances may pose risks to human health, threaten aquatic life and its habitat, and impair the use and enjoyment of the Nation's waterways.

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<sup>72</sup> Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688, 18691 (Apr. 19, 1994).

<sup>73</sup> Ex. 9, Seattle Public Utilities, *supra* note 16, at 3-14; Exs. 13, 14, City of Seattle, *supra* note 20.

<sup>74</sup> Combined Sewer Overflow (CSO) Policy, 59 Fed. Reg. 18688, 18689 (Apr. 19, 1994).

Today—twenty years after the City’s combined-sewer overflows were supposed to be controlled under the EPA’s policy—Seattle continues to discharge hundreds of millions of gallons of raw sewage mixed with storm water into surrounding waterbodies.<sup>75</sup> This mixture of raw sewage and storm water may contain PCBs far exceeding the relevant water quality standard.<sup>76</sup>

By continuing to discharge millions of gallons of highly polluted combined-sewer overflows into adjacent waterbodies, the City of Seattle is causing and contributing to violations of water quality standards, including the human-health-based water quality standard for PCBs and the narrative standard for toxics. Each such discharge is a separate violation of the Clean Water Act and of section S1 of the Combined-Sewer Permit.

Section S1 of the permit also requires the City to properly maintain and operate the system to reduce combined-sewer overflows. But Seattle continues to have combined-sewer overflows that are worsened by the City’s failure to invest adequately in maintenance of the system.<sup>77</sup>

In addition, section S4.G.1 of the permit requires the City to immediately stop unauthorized discharges and to correct the problem. Section S4.G.2.e requires the City to report violations to Ecology. Though the City is discharging hundreds of millions of gallons of sewage and storm water that contains pollutants at high levels—including PCBs materially higher than the water quality standard—the City does not appear either to report the violations of water quality standard to Ecology or to rectify the problem immediately.

**C. The City’s Continued Separate-Sewer Overflows Violate the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the Combined-Sewer Permit, § S5**

The City’s Combined-Sewer Permit requires it to adequately operate and maintain the entire sewage system. Combined-Sewer Permit, § S5. But the City has failed to do so, and separate-sewer overflows have actually increased since the City entered the consent decree. These discharges of sewage laden with pollutants are not permitted and result from the City’s failure to adequately maintain its sewage system.

**D. The City’s Discharges to the West Point Treatment Plant When It Lacked Capacity Violated the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the Combined-Sewer Permit, §§ S2.4, G**

On February 9, 2017, the pumps at the West Point Treatment Plant, a water treatment plant to which Seattle discharges its sewage, failed. The failure of the pumps caused the plant to suffer catastrophic damage and more than 260 million gallons of effluent—including raw,

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<sup>75</sup> Ex. 9, Seattle Public Utilities, *supra* note 16, at 5-87; Ex. 15, Summary of Seattle’s Discharge Monitoring Reports for 2016.

<sup>76</sup> Ex. 5, King County Department of Natural Resources and Parks, *supra* note 7, at 17.

<sup>77</sup> Ex. 9, Seattle Public Utilities, *supra* note 16, at 3-13.

untreated sewage—were discharged directly into Puget Sound on February 9 alone.<sup>78</sup> The West Point Treatment Plant failure has also led to subsequent overflows of several million gallons of effluent also including untreated sewage, which were similarly discharged directly into Puget Sound.<sup>79</sup> As a result of these discharges, beaches in Discovery Park in Seattle were closed due to human health concerns.<sup>80</sup>

The failure of the West Point Treatment Plant has degraded the amount of water treatment that occurs of wastewater, storm water, and sewage before it is discharged into Puget Sound. As the Seattle Times has explained, “West Point is supposed to send wastewater into Puget Sound cleaned to at least 85 percent purity. But right now wastewater is being returned to the Sound only 40 percent clean of solids—or worse.”<sup>81</sup> Indeed, on March 3, 2017 alone as much as 107 tons of untreated solids from wastewater, storm water and sewage were discharged into Puget Sound.<sup>82</sup> A member of the Seattle City Council has described the West Point Treatment Plant as “an environmental catastrophe every day it is not up and running.”<sup>83</sup>

These discharges into Puget Sound include a number of pollutants, including PCBs and dangerous levels of bacteria. Much of this highly polluted sewage and storm water originated from the City of Seattle. By discharging polluted storm water and sewage to the West Point treatment plant when it was not working—and when the storm water and sewage would inevitably reach receiving waters without adequate treatment—Seattle violated conditions S2.4 and G8 of its Combined-Sewer Permit.

These violations have, collectively, caused or contributed to, and continue to cause and contribute to, the current conditions in the receiving waters. Further, the City has taken inadequate affirmative steps to eliminate discharges of PCBs and other contaminants from combined-sewer outfalls, and Claimants are informed and believe that these violations are ongoing and will continue in the future. Every day that polluted storm water is discharged from

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<sup>78</sup> Ex. 40, Lynda V. Mapes, *Another Sewage Spill Fouls Puget Sound, this Time in West Seattle*, Seattle Times, Feb. 17, 2017, <http://www.seattletimes.com/seattle-news/health/another-sewage-spill-fouls-puget-sound/>; Ex. 41, Lynda V. Mapes, *Officials Say Damage to Sewage Plant in Discovery Park is Catastrophic*, Seattle Times, Feb. 16, 2017, <http://www.seattletimes.com/seattle-news/health/crippled-treatment-plant-stops-dumping-raw-sewage-into-puget-sound-for-now/>.

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> Ex. 42, Lynda V. Mapes, *Damage to West Point Treatment Plant Could Top \$25 Million*, Seattle Times, Feb. 27, 2017, <http://www.seattletimes.com/seattle-news/puget-sound/damage-to-west-point-treatment-plant-could-top-25-million/>.

<sup>82</sup> Ex. 43, Lynda V. Mapes, *Sludge Bugs: Sewage-Eating Microbes in Peril at Crippled West Point Plant*, Seattle Times, Mar. 12, 2017, <http://www.seattletimes.com/seattle-news/environment/west-point-treatment-plant-sewage-microbes-puget-sound/>.

<sup>83</sup> Ex. 42, Lynda V. Mapes, *supra* note 81.

the City's combined-sewer outfalls in violation of water quality standards is a separate and distinct violation of Clean Water Act Section 301, 33 U.S.C. § 1311, and the Combined-Sewer Permit. These violations will continue each day that discharges are made from the combined sewer in violation of the requirements of the Clean Water Act and the Combined-Sewer Permit. Pursuant to Section 309(d) of the Clean Water Act, the City is subject to penalties for all violations of the Combined-Sewer Permit and the Clean Water Act occurring within the past five years. 33 U.S.C. § 1319(d).

#### **IV. SEATTLE HAS VIOLATED THE MS4 PERMIT AND THE CLEAN WATER ACT**

##### **A. The City's Violations of the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the MS4 Permit, §§ S4.A, S4.B**

Section S4.A and S4.B of the MS4 Permit require the City to comply with water quality standards. The City does not comply with this requirement. Rather, recent sampling shows that storm water in the Lake Washington watershed (including Seattle) has PCB levels materially higher than Washington's standards.<sup>84</sup>

The City has taken inadequate affirmative steps to eliminate the discharge of PCBs in storm water, in violation of water quality standards. These violations are ongoing and will continue in the future. Every day that polluted storm water enters the City's MS4 in violation of the water quality standards—including the human-health-based criteria for PCBs and the narrative standard for toxics—is a separate and distinct violation of the Clean Water Act § 301, 33 U.S.C. § 1311, and the MS4 Permit. Pursuant to Section 309(d) of the Clean Water Act, the City is subject to penalties for all violations of the MS4 Permit and the Act occurring within the past five years. 33 U.S.C. § 1319(d).

##### **B. The City's Violations of the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the MS4 Permit, §§ S4.C, S4.D**

The MS4 Permit requires the City to reduce the discharge of pollutants to the "maximum extent practicable" and to "apply all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the State of Washington." MS4 Permit §§ S4.C, S4.D.

But the City has failed to undertake some simple measures that would be practicable and reasonable—and highly effective. For example, the City has no purchasing policy requiring it to purchase only products free of inadvertently generated PCBs—even for products that will inevitably come into contact with storm water and be discharged into receiving waters. As a result, the City continues to use products, including hydroseed, deicer, traffic paint, asphalt sealant, and motor oil—all of which are highly likely or certain to eventually enter storm water—that may contain inadvertently generated PCBs at levels materially higher than the water quality standard.

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<sup>84</sup> Ex. 5, King County Department of Natural Resources and Parks, *supra* note 7, at 15.



Similarly, the City does not mandate PCBs-specific BMPs before issuing permits to demolish or renovate older buildings that are highly likely to contain PCBs. This results in PCBs being mobilized and eventually entering storm water and waterbodies, both through storm water systems and through artificial channels. The City apparently does not even have such a policy for its own renovations and demolitions. The City's failure to require such BMPs is particularly troubling given that it is documented that building materials containing PCBs have polluted Seattle's waterways.<sup>85</sup>

By continuing to use products containing inadvertently generated PCBs and by failing to have a policy requiring PCB-specific BMPs for building renovation and demolition, the City is failing to reduce the discharge of pollutants to the "maximum extent practicable" or to "apply all known, available, and reasonable methods of prevention, control and treatment."

**C. The City's Violations of the Clean Water Act, 33 U.S.C. §§ 1311 & 1342 and the MS4 Permit, § S4.F**

Upon information and belief, the City has not reported all of its violations to Ecology, and consequently it is in violation of Section S4.F of the MS4 Permit. The City must notify Ecology in writing within 30 days of becoming aware of a violation. MS4 Permit, § S4.F.1. Recent reports list storm water as a source of PCBs in Lake Washington and surrounding waters.<sup>86</sup> Therefore, the City had detailed site-specific information that discharges from the MS4 are likely causing or contributing to a violation of a water quality standard. However, the City has not taken adequate measures to report and eliminate these discharges and thus is in violation of the MS4 Permit, section S4.F.1.

The City is also required to submit to Ecology a report describing its current BMPs, including an assessment of the effectiveness of each BMP; additional BMPs that will or may be implemented in order to prevent or reduce violations; monitoring to assess the effectiveness of the additional BMPs; and a schedule for implementing the additional BMPs. MS4 Permit, § S4.F.3.a. Ecology will then approve the additional BMPs or require the City to modify its report. *Id.* at S4.F.3.b. By failing to notify Ecology of its violations of the water quality standard for PCBs and then failing to implement BMPs to eliminate those violations, the City is in violation of the MS4 Permit, section S4.F.

The City has been continuously discharging polluted storm water into the MS4 and failing to notify Ecology of such discharges. The City has taken inadequate affirmative steps to eliminate these violations, thus, these violations are ongoing and will continue in the future. These violations will continue each day the City fails to notify Ecology of the discharges of polluted storm water. The City is subject to penalties for all violations of the Clean Water Act

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<sup>85</sup> Ex. 44, King County Department of Natural Resources and Parks, A Review of PCB Source Tracing Programs 40 (July 2016) (exterior paint with levels of PCBs up to 213,000,000 micrograms/kilogram polluted City storm drains and the Lower Duwamish Waterway), [http://www.ecy.wa.gov/puget\\_sound/docs/PCBSourceTracingProgramsReport.pdf](http://www.ecy.wa.gov/puget_sound/docs/PCBSourceTracingProgramsReport.pdf).

<sup>86</sup> Ex. 5, King County Department of Natural Resources and Parks, *supra* note 7, at vi.

described in this section occurring in the past five years. 33 U.S.C. § 1319 (d).

#### **V. SEATTLE HAS VIOLATED THE CLEAN WATER ACT AND THE CONSTRUCTION GENERAL PERMIT**

In its construction projects, the City uses products known to have the potential to contain inadvertently generated PCBs—including hydroseed and asphalt sealant. Additionally, the City has enacted no requirement to implement PCBs-specific best management practices when renovating or demolishing buildings that are likely to contain PCBs. By using construction materials that contain PCBs and by failing to implement such best management practices, the City is violating the Construction General Permit, sections S3.A (requiring compliance with water quality standards), S3.B (requiring a permittee to “apply all known, available, and reasonable methods of prevention, control, and treatment”), and S9 (requiring the permittee to prepare and implement a SWPPP that among other things requires the permittee to “handle and dispose of all pollutants ... in a manner that does not cause contamination of stormwater”).

These violations occur each day that the City works on a construction project covered by the Construction General Permit and uses materials containing inadvertently generated PCBs that come into contact with storm water or fails to implement PCBs-specific best management practices for buildings containing PCBs. The City is subject to penalties for all violations of the Clean Water Act described in this section occurring in the past five years. 33 U.S.C. § 1319 (d).

#### **VI. SEATTLE HAS VIOLATED THE CLEAN WATER ACT BY DISCHARGING POLLUTANTS WITH NO PERMIT**

Under the Clean Water Act, a point source includes vehicles—such as the deicing trucks that Seattle uses—that discharge pollutants directly into or over navigable waters. *See, e.g., League of Wilderness Defenders v. Forsgren*, 309 F.3d 1181, 1185 (9th Cir. 2002) (planes spraying pesticides over forest is a point source); *Sierra Club v. BNSF Ry. Co.*, 2016 U.S. Dist. LEXIS 147786 (coal particles emitted from trains traveling adjacent to and over waters are point source discharges).

Seattle is surrounded by waterbodies, and when the City applies to the roads products that contain inadvertently generated PCBs—including deicers, road paint, and asphalt sealant—some of these products are inevitably discharged directly to waterbodies.<sup>87</sup> Upon information and belief, every time the City applies such products directly to its roadways, a portion of them is discharged directly to nearby waterbodies, in violation of the Clean Water Act.

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<sup>87</sup> See, e.g., Ex. 45, Ohio Office of Compliance Assistance & Pollution Prevention, Pollution Prevention in Painting and Coating Operations 2 (2004) (regarding potential for paint to drift), <http://www.epa.ohio.gov/portals/41/fact23.pdf>.

LATHAM & WATKINS LLP

## VII. CONCLUSION

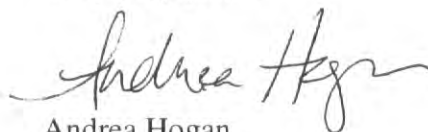
The Claimants believe this Notice Letter sufficiently states grounds for filing suit. Upon expiration of the 60-day notice period, the Claimants intend to amend their counterclaims in the Action to include a citizen enforcement action in federal court pursuant to Section 505(a) of the Clean Water Act for the above violations. In addition to the violations set forth above, this Notice Letter covers all violations of the Clean Water Act by the City evidenced by information that becomes available to the Claimants after the date hereof.

Pursuant to Section 309(d) of the Act, 33 U.S.C. § 1319(d), and the Adjustment of Civil Monetary Penalties for Inflation, 40 C.F.R. § 19.4 (1997), each separate violation of the Clean Water Act subjects the violator to a penalty. These provisions of law authorize civil penalties of up to \$37,500 per day per violation for all Clean Water Act violations occurring after January 12, 2009 through November 2, 2015, and up to \$52,414 per day per violation for violations after November 2, 2015. In addition to civil penalties, the Claimants may seek preliminary and permanent injunctive relief preventing further violations of the Clean Water Act pursuant to Sections 505(a) and (d), 33 U.S.C. § 1365(a) and (d), and such other relief as is permitted by law. Lastly, Section 505(d) of the Clean Water Act, 33 U.S.C. § 1365(d), permits prevailing parties to recover costs and fees.

The Claimants have retained legal counsel to represent it in this matter. Please direct all communications to:

Andrea Hogan, Esq.  
Latham & Watkins LLP  
505 Montgomery Street, Suite 2000  
San Francisco, CA 94111  
Phone: (415) 391-0600

Very truly yours,



Andrea Hogan  
of LATHAM & WATKINS LLP

LATHAM & WATKINS<sup>LLP</sup>

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Exhibits to

Clean Water Act Notice of Intent to Sue/60-Day  
Notice Letter

City of Seattle Violations of Clean Water Act  
and Combined-Sewer Permit, MS4 Permit, and  
Construction General Permit

1

Issuance Date: March 30, 2016  
Effective Date: May 1, 2016  
Expiration Date: April 30, 2021

**National Pollutant Discharge Elimination System  
Waste Discharge Permit No. WA0031682**

State of Washington  
DEPARTMENT OF ECOLOGY  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

In compliance with the provisions of  
The State of Washington Water Pollution Control Law  
Chapter 90.48 Revised Code of Washington  
and  
The Federal Water Pollution Control Act  
(The Clean Water Act)  
Title 33 United States Code, Section 1342 et seq.

**City of Seattle, Seattle Public Utilities**

700 Fifth Avenue, Suite 4900  
P.O. Box 34018  
Seattle, WA 98124-4018

The City of Seattle is authorized to discharge combined sewage and stormwater at eighty-six (86) combined sewer overflow outfall locations, as indicated in Special Condition S1, and in accordance with the other Special and General Conditions that follow.

  
Kevin C. Fitzpatrick  
Water Quality Section Manager  
Northwest Regional Office  
Washington State Department of Ecology

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## Summary of Permit Report Submittals

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S4.A	Combined Sewer Overflow Monitoring Report	Monthly	June 28, 2016
S4.B	Annual CSO Report	Annually	March 31, 2017
S4.G.2.b	Reporting Permit Violations, 5-day Follow-up Report	As necessary	
S4.G.2.d	Reporting Permit Violations, Quarterly Basement Backup Follow-up Report	As necessary	
S6.C.1	Post-Construction Monitoring Program Quality Assurance and Sediment Sampling and Analysis Plans for outfalls 18, 68, and 95.	1 plan per outfall, per permit cycle.	See condition for specific submittal dates.
S6.C.3	Sediment Sampling Data Report for outfalls 13, 18, 68, and 95.	1 report per outfall, per permit cycle.	See permit section for specific submittal dates.
S6.C.4	Post-Construction Monitoring Data Report	1/permit cycle	October 30, 2021
S7.A	Combined Sewer Overflow Reduction Plan Amendment	1/permit cycle with renewal application	October 30, 2021
S8	Compliance Schedule Submittals	Multiple milestone requirements scheduled for completion between March 31, 2017 and December 31, 2020. See permit section for specific milestone dates.	
S9	Outfall Rehabilitation Plan and Inventory	1/permit cycle	October 30, 2021
S10	Application for Permit Renewal	1/permit cycle	October 30, 2021
G1	Notice of Change in Authorization	As necessary	
G4	Reporting Planned Changes	As necessary	
G5	Engineering Report for Construction or Modification Activities	As necessary	
G7	Notice of Permit Transfer	As necessary	
G10	Duty to Provide Information	As necessary	
G20	Compliance Schedules	As necessary	
G21	Contract Submittal	As necessary	

## Special Conditions

### S1. Authorized combined sewer overflow (CSO) discharge locations

Beginning on the effective date of this permit, the Permittee may discharge combined wastewater and stormwater from the CSO outfalls listed in Table 1. The CSO outfalls represent occasional point sources of pollutants as a result of overloading of the combined sewer system during precipitation events. The permit prohibits discharges not caused by precipitation events. This permit does not authorize a discharge from a CSO outfall that causes adverse impacts that threaten characteristic uses of the receiving water as identified in the water quality standards, Chapter 173-201A WAC, or result in an exceedance of the Sediment Management Standards, Chapter 173-204 WAC.

Outfall No.	Street Address	Latitude	Longitude	Name of Receiving Water
12	NE 60th ST & NE WINDERMERE RD	47.67108	-122.25295	Lake Washington
13	WINDERMERE PARK; NE AMBLESIDE RD & NE PENRITH RD	47.66382	-122.26522	Lake Washington
14	4218 55TH AVE NE	47.65925	-122.26799	Lake Washington
15	NE LAURELCREST LN & 51ST AVE NE	47.65523	-122.27129	Lake Washington
16	3005 WEBSTER POINT RD NE	47.64845	-122.27815	Lake Washington
18	3901 NE SURBER DR	47.65672	-122.28764	Union Bay
19	4501 27TH AVE NE	47.66103	-122.29782	Union Bay
20	E SHELBY ST & EAST PARK DR E	47.64696	-122.30074	Union Bay
22	2539 39TH AVE E	47.64246	-122.28285	Union Bay
24	E LEE ST & 42ND AVE E	47.63093	-122.27623	Lake Washington
25	E LEE ST & 42ND AVE E	47.63087	-122.27533	Lake Washington
27	1502 LAKE WASHINGTON BLVD	47.61492	-122.27996	Lake Washington
28	1500 LAKE WASHINGTON BLVD	47.61385	-122.28017	Lake Washington
29	LAKE WASHINGTON BLVD & FULLERTON AVE	47.60683	-122.28210	Lake Washington
30	LAKE WASHINGTON BLVD & E JEFFERSON ST	47.60577	-122.28262	Lake Washington
31	299 LAKESIDE AVE S	47.60013	-122.28498	Lake Washington
32	LAKESIDE AVE S & S DEARBORN ST	47.59572	-122.28621	Lake Washington
33	LAKESIDE AVE S & S CHARLES ST	47.59456	-122.28668	Lake Washington
34	LAKESIDE AVE S & S CHARLES ST	47.59451	-122.28666	Lake Washington
35	LAKESIDE AVE S & S MASSACHUSETTS ST	47.58756	-122.28456	Lake Washington
36	2310 LAKE WASHINGTON BLVD S	47.58261	-122.28612	Lake Washington
38	STANLEY SAYRES PARK; 3808 LAKE WASHINGTON BLVD S	47.57139	-122.27555	Lake Washington
40	LAKE WASHINGTON BLVD S & 49TH AVE S	47.56840	-122.27192	Lake Washington
41	LAKE WASHINGTON BLVD S & 50TH AVE S	47.56824	-122.26983	Lake Washington
42	4608 LAKE WASHINGTON BLVD S	47.56234	-122.26664	Lake Washington
43	LAKE WASHINGTON BLVD S & S ALASKA ST	47.56062	-122.26389	Lake Washington
44	SEWARD PARK; LAKE WASHINGTON BLVD S & S JUNEAU ST	47.54735	-122.25531	Lake Washington
45	MARTHA WASHINGTON PARK; 5711 S HOLLY ST	47.54150	-122.25961	Lake Washington
46	PRITCHARD ISLAND BEACH PARK; 8314 ISLAND DR S	47.52946	-122.26177	Lake Washington
47	BEER SHEVA PARK; SEWARD PARK AVE S & S HENDERSON ST	47.52329	-122.26287	Lake Washington
48	9722 RAINIER AVE S	47.51601	-122.25318	Lake Washington
49	9861 RAINIER AVE S	47.51341	-122.25029	Lake Washington
57	6701 SEAVIEW AVE NW	47.67843	-122.40693	Puget Sound - Central

Outfall No.	Street Address	Latitude	Longitude	Name of Receiving Water
59	5637 SEAVIEW AVE NW	47.67029	-122.40590	Salmon Bay
60	W CRAMER ST & 39TH AVE W	47.66782	-122.40740	Salmon Bay
61	2599 PERKINS LN W	47.64315	-122.41871	Elliott Bay
62	2599 PERKINS LN W	47.64200	-122.41774	Elliott Bay
64	1499 32ND AVE W	47.63158	-122.39925	Elliott Bay
68	PIER 91 AT 1523 W GARFIELD ST	47.63307	-122.37919	Elliott Bay
69	ALASKAN WAY & VINE ST	47.61321	-122.35232	Elliott Bay
70	ALASKAN WAY & UNIVERSITY ST	47.60581	-122.34053	Elliott Bay
71	ALASKAN WAY & MADISON ST	47.60370	-122.33858	Elliott Bay
72	199 ALASKAN WAY S	47.60090	-122.33671	Elliott Bay
78	SEACREST PARK; HARBOR AVE SW & FAIRMOUNT AVE SW	47.58752	-122.37723	Elliott Bay
80	DON ARMENI PARK; 112 HARBOR AVE SW	47.59327	-122.38206	Elliott Bay
83	ALKI BEACH PARK AT 1501 ALKI AVE SW	47.59125	-122.39415	Puget Sound - Central
85	3219 POINT PL SW	47.57676	-122.42008	Puget Sound - Central
88	5079 BEACH DR SW	47.55567	-122.40025	Puget Sound - Central
90	LOWMAN BEACH PARK; 7015 BEACH DR SW	47.53994	-122.39988	Puget Sound - Central
91	LINCOLN PARK; 8635 FAUNTLEROY WAY SW	47.52569	-122.39549	Puget Sound - Central
94	FAUNTLEROY FERRY TERMINAL; 4829 SW BARTON ST	47.52372	-122.39673	Puget Sound - Central
95	9279 FAUNTLEROY WAY SW	47.52050	-122.39578	Puget Sound - Central
99	TERMINAL 5 AT 3450 W MARGINAL WAY SW	47.57367	-122.36120	West Waterway - Duwamish River
107	3411 E MARGINAL WAY S	47.57367	-122.34269	East Waterway - Duwamish River
111	3 S OREGON ST	47.56314	-122.34531	Duwamish River
120	2770 WESTLAKE AVE N	47.64541	-122.34706	Lake Union
121	2046 WESTLAKE AVE N	47.63811	-122.34026	Lake Union
124	LAKE UNION PARK AT 800 WESTLAKE AVE N	47.62663	-122.33868	Lake Union
127	1099 FAIRVIEW AVE N	47.62965	-122.33123	Lake Union
129	TERRY PETTUS PARK; FAIRVIEW AVE E & E NEWTON ST	47.63681	-122.32950	Lake Union
130	LYNN ST PARK; FAIRVIEW AVE E & E LYNN ST	47.63959	-122.33037	Lake Union
131	2373 FAIRVIEW AVE E	47.64209	-122.33001	Lake Union
132	ROANOKE ST PARK; FAIRVIEW AVE E & E ROANOKE ST	47.64331	-122.32883	Lake Union
134	FAIRVIEW AVE E & E ALLISON ST	47.64924	-122.32501	Lake Union
135	3315 EASTLAKE AVE E	47.65208	-122.32092	Lake Union
136	3100 PORTAGE BAY PL E	47.64885	-122.31769	Lake Union
138	1209 E SHELBY ST	47.64693	-122.31604	Portage Bay
139	MONTLAKE PLAYFIELD AT 1618 E CALHOUN ST	47.64268	-122.31077	Portage Bay
140	W MONTLAKE PARK; WEST PARK DR E & E SHELBY ST	47.64693	-122.30952	Portage Bay
141	BRYANT SITE PARK AT 1215 NE BOAT ST	47.65086	-122.31563	Portage Bay
144	3790 LATONA AVE NE	47.65313	-122.32556	Lake Union
145	SUNNYSIDE AVE N BOAT RAMP; 2301 N NORTHLAKE WAY	47.65009	-122.33048	Lake Union
146	1430 N NORTHLAKE WAY	47.64722	-122.33962	Lake Union
147	N NORTHLAKE WAY & STONE WAY N	47.64801	-122.34285	Lake Union
148	4125 9TH AVE NW	47.65653	-122.36679	Lake Washington - Ship Canal
150	5301 24TH AVE NW	47.66677	-122.38801	Salmon Bay Waterway



Outfall No.	Street Address	Latitude	Longitude	Name of Receiving Water
151	5301 24TH AVE NW	47.66680	-122.38821	Salmon Bay Waterway
152	5301 28TH AVE NW	47.66728	-122.39284	Salmon Bay Waterway
161	MAGNUSON PARK AT 6451 65TH AVE NE	47.67713	-122.24909	Lake Washington
165	LAKE WASHINGTON BLVD S & S ALASKA ST	47.56061	-122.26401	Lake Washington
168	2311 SW MYRTLE ST	47.53920	-122.36241	Longfellow Creek
169	LONGFELLOW CREEK; 2450 SW THISTLE ST	47.52916	-122.36380	Longfellow Creek
170	2311 SW MYRTLE ST	47.53919	-122.36242	Longfellow Creek
171	CHINOOK BEACH PARK AT 9510 RAINIER AVE S	47.52062	-122.25972	Lake Washington
174	FREMONT CANAL PARK AT 151 NW CANAL ST	47.65276	-122.35980	Lake Washington - Ship Canal
175	FAIRVIEW AVE E & E GARFIELD ST	47.63389	-122.32722	Lake Union

## S2. Nine minimum controls

In accordance with Chapter 173-245 WAC and US EPA CSO control policy (59 Fed. Reg. 18688), the Permittee must implement the following nine minimum controls (NMC) for CSOs. The Permittee must document compliance with the NMC in the Annual CSO Reports required in special condition S4.B.

The Permittee must comply with the following technology-based requirements for CSO systems. The Permittee must:

1. Implement proper operation and maintenance programs for the sewer system and all CSO outfalls to reduce the magnitude, frequency, and duration of CSOs. The Permittee shall implement the Operation and Maintenance Plan for the Combined Sewer System (CSS) that will include the elements listed below. The Permittee also shall update the plan to incorporate any changes to the system and shall operate and maintain the system according to the plan. The Permittee shall keep records to document the implementation of the plan.
  - a. *Inspection and Maintenance of CSS.* The Permittee shall inspect and maintain all CSO structures, regulators, pump stations, and tide gates to ensure that they are in good working condition and adjusted to minimize CSOs and prevent tidal inflow. The Permittee shall inspect each CSO regulator structure at an appropriate frequency to ensure no dry weather overflows are occurring. The inspection shall include, but is not limited to, determining the extent of debris and grit buildup, and removing any debris or transfer of debris to the County system that may constrict flow, cause blockage, or result in a dry weather overflow. The Permittee shall keep records of the inspections. For CSO regulator structures that are inaccessible, the Permittee may perform a visual check of the overflow pipe to determine whether or not the CSO is occurring during dry weather flow conditions.
  - b. *Provision for Trained Staff.* The Permittee shall ensure the availability of trained staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.
  - c. *Allocation of Funds for O&M.* The Permittee shall allocate adequate funds specifically for operation and maintenance activities.

2. Implement procedures that will maximize use of the collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency, and duration of CSOs.
3. Review and modify pretreatment requirements to minimize the impacts of CSO discharges. Compliance with this control includes, but is not limited to, enforcing the Permittee's FOG ordinances and assisting King County in administering their Industrial Pretreatment Program within the Permittee's service area.
4. Operate the conveyance system to King County's interceptors and POTW/CSO treatment plants at the maximum transferable flow during wet weather flow conditions/events and deliver all flows to the treatment plants within the constraints of the capacity of the treatment plants. The Permittee shall keep records to document these actions.
5. Not discharge overflows from CSO outfalls except as a result of precipitation events; dry weather overflows from CSO outfalls are prohibited. The Permittee must report each dry weather overflow to the permitting authority as soon as it becomes aware of the overflow but no later than 24 hours after becoming aware of the dry weather overflow. When it detects a dry weather overflow, the Permittee must begin corrective action immediately and inspect the dry weather overflow each subsequent day until it has eliminated the overflow. The Permittee shall maintain records of the cause, corrective measures taken, estimate of the overflow volume and the dates of beginning and cessation of the dry weather overflow.
6. Implement measures to control solid and floatable materials in CSOs.
7. Implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters. The pollution prevention program must include best management practices (BMPs) as an element to control pollutant sources that impact stormwater in combined basins. Ecology's *Stormwater Management Manual for Western Washington* (2012) contains appropriate BMPs for reference.  
  
Starting with the Annual CSO Report submitted in 2018, the Permittee must include a detailed description of the pollution prevention program, appropriate BMPs, and the legal authority and administrative procedures that the Permittee will use to ensure the program implementation. If the legal authority and/or administrative procedures are not in place, the Annual CSO Report must include a detailed description of the steps needed to establish such a program and the timeline for getting the program in place.
8. Continue to implement the public notification process to inform the citizens of when and where CSOs occur. The process must include (a) mechanism to alert persons of the occurrence of CSOs and (b) a system to determine the nature and duration of conditions that are potentially harmful for users of receiving waters due to CSOs.
9. Monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls.

### S3. Monitoring requirements

#### S3.A. CSO monitoring schedule

The Permittee must monitor all discharges from CSO outfalls listed in Special Condition S1 using the following monitoring schedule. The Permittee must use automatic flow monitoring equipment to collect the information required below. The Permittee must calibrate flow monitoring equipment according to requirements in S3.C. The Permittee must also conduct ambient water quality and sediment monitoring at select outfalls according to the schedule and protocols detailed in condition S6.C.

Parameter	Units	Minimum Sampling Frequency	Sample Type
<b>(1) Discharge</b>			
CSO discharge is defined as any untreated CSO which will exit or has exited the CSO outfall.			
Volume Discharged	Gallons	Per Event <sup>c</sup>	Measurement/Calculation <sup>a,b</sup>
Discharge Duration	Hours	Per Event <sup>c</sup>	Measurement
Storm Duration	Hours	Per Event <sup>d</sup>	Measurement
Precipitation	Inches	Per Event <sup>c</sup>	Measurement/Calculation <sup>b</sup>
<b>(2) Post-Construction Monitoring Program</b>			
The Permittee must monitor ambient water and sediment quality as Specified in Special Condition S6.C for select outfalls.			
<b>Footnotes for CSO Monitoring:</b>			
<sup>a</sup> Flow measurement must be continuous, except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. During periods of interrupted service, a calculation may be used to estimate the discharge volume. An explanation must be provided in the monthly DMR for all disruptions in flow measurement.			
<sup>b</sup> "Measurement/Calculation" means the total volume of the discharge or amount of precipitation event as estimated by direct measurement or indirectly by calculation (i.e. flow weirs, pressure transducers, tipping bucket). Precipitation must be measured by the nearest possible precipitation-measuring device and actively monitored during the period of interest.			
<sup>c</sup> "Per Event" means a unique flow event as defined in the <i>Permit Writer's Manual</i> , p. V-17. Ecology defines the minimum inter-event period (MIET) as 24 hours. A CSO event is considered to have ended only after at least 24 hours has elapsed since the last measured occurrence of an overflow.			
<sup>d</sup> Storm duration is the amount of total time when precipitation occurred that contributed to a discharge event. It is determined on a case-by-case basis.			

#### S3.B. Sampling and analytical procedures<sup>1</sup>

Samples and measurements taken to meet the requirements of this permit must represent the volume and nature of the monitored parameters. The Permittee must conduct representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions that may affect effluent quality.

<sup>1</sup> The Permittee must conduct sampling and measurement only for volume discharged and precipitation, as noted in S3.A. The permit may require additional sampling and analyses in accordance with Sections S4.G, S4.H, and S6.C.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 (or as applicable in 40 CFR subchapters N [Parts 400–471] or O [Parts 501–503]) unless otherwise specified in this permit. Ecology may only specify alternative methods for parameters without permit limits and for those parameters without an EPA approved test method in 40 CFR Part 136.

**S3.C. *Flow measurement, field measurement, and continuous monitoring***

The Permittee must:

1. Select and use appropriate flow measurement, field measurement, and continuous monitoring devices and methods consistent with accepted scientific practices.
2. Install, calibrate, and maintain these devices to ensure the accuracy of the measurements is consistent with the accepted industry standard, the manufacturer's recommendation, and approved O&M manual procedures for the device and the wastestream.
3. Use field measurement devices as directed by the manufacturer and do not use reagents beyond their expiration dates.
4. Establish a calibration frequency for each device or instrument in the O&M manual that conforms to the frequency recommended by the manufacturer.
5. Maintain calibration records for at least three years.

**S3.D. *Laboratory accreditation***

The Permittee must ensure that all monitoring data required by Ecology for permit specified parameters is prepared by a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement.

**S4. *Reporting and recording requirements***

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

**S4.A. *Monthly CSO discharge monitoring reports***

The first monitoring period begins on the effective date of the permit (unless otherwise specified). The Permittee must:

1. Submit CSO monitoring results each month.
2. Summarize, report, and submit the electronic discharge monitoring report (DMR) form provided by Ecology within the Water Quality Permitting Portal for all event-based monitoring data obtained during each monitoring period. Include data for each of the parameters tabulated in Special Condition S2 and as required by the form. Report a value for each day sampling occurred



(unless specifically exempted in the permit) and for the summary values (when applicable) included on the electronic form.

To find out more information and to sign up for the Water Quality Permitting Portal go to: <http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html>

1. Enter the “no discharge” reporting code for an entire eDMR or for a specific outfall, if the Permittee did not have a CSO during a given monitoring period.
2. For any automatic flow monitoring equipment that is installed but non-operational during the reporting month, the Permittee must identify the duration of the outage and whether or not it is likely that a discharge occurred during the non-operational period.
3. Ensure that DMRs are electronically submitted no later than the 28<sup>th</sup> day of the month following the completed monitoring period.

**S4.B. Annual CSO reports**

The Permittee must submit an annual CSO report to Ecology for review and approval by March 31<sup>st</sup> of each year. The annual CSO report must cover the previous calendar year. The report must comply with the requirements of WAC 173-245-090(1) and must include documentation of compliance with the Nine Minimum Controls for CSOs described in Special Condition S2. The Permittee must submit the reports electronically using the *Water Quality Permitting Portal – Permit Submittals* application. Each submittal must include all appropriate written report(s) in PDF format and all significant spreadsheets in Microsoft Excel format. The annual CSO report must include the following information:

1. A summary of the number and volume of untreated discharge events per outfall for that year.
2. A summary of the 20-year moving average<sup>2</sup> number of untreated discharge events per outfall, calculated once annually.
3. An event-based reporting form (provided by Ecology) for all CSO discharges for the reporting period, summarizing all data collected according to the monitoring schedule in Special Condition S2.
4. An explanation of the previous year’s CSO reduction accomplishments, including a description of the progress made on all sewer system improvement projects and an assessment of the control status and effectiveness of these improvements.
5. A list of CSO reduction projects planned for the next year.
6. A list of which permitted CSO outfalls that can be categorized as meeting the no more than one untreated discharge per year on a 20-year moving average

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<sup>2</sup> The 20-year moving average shall be calculated by counting the number of untreated discharge events as of December 31 for each of the twenty years that immediately precede the year of the annual report, adding those numbers of untreated discharge events together, and then dividing that summation by twenty to arrive at the 20-year moving average.

performance standard. This annual assessment may be based on historical long-term discharge data, modeling, or other reasonable methods as approved by Ecology.

***S4.C. Other permit submittals and schedules***

The Permittee must use the *Water Quality Permitting Portal – Permit Submittals* application to submit all other written permit-required reports by the date specified in the permit.

When another permit condition requires submittal of a paper document or a report/file that cannot be accepted by the Water Quality Permitting Portal (i.e. video file for outfall inspection, documents with large file sizes or documents divided into several separate electronic files), the Permittee must ensure that the report/file is postmarked or received by Ecology no later than the dates specified by this permit. Send these reports/files to Ecology at:

NPDES Permit Manager  
Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

***S4.D. Records retention***

The Permittee must retain records of all monitoring information for a minimum of three (3) years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

***S4.E. Recording of results***

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.
2. The individual who performed the sampling or measurement.
3. The dates the analyses were performed.
4. The individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

All laboratory reports providing data for sediments for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from

samples sent to a contract laboratory must include information on the chain of custody, the analytical method, Quality Assurance (QA)/Quality Control (QC) results, and documentation of accreditation for the parameter.

**S4.F. Additional monitoring by the Permittee**

If the Permittee monitors any pollutant more frequently than required by Special Condition S3 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR unless otherwise specified by Special Condition S3.

**S4.G. Reporting permit violations**

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

1. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
2. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

**a. Immediate reporting**

The Permittee must *immediately* report to Ecology and Public Health of Seattle – King County at the numbers listed below all:

- Collection system overflows that discharge to surface water, stormwater conveyance systems, or into areas open to public access. This reporting requirement does not apply to permitted CSO discharges.
- Any other failures of the sewage system (pipe breaks, etc.) that may impact surface water or public health.

Northwest Regional Office	425-649-7000
Public Health of Seattle-King County	206-296-4932

Additionally, for any sanitary sewer overflow (SSO) that discharges to a municipal separate storm sewer system (MS4), the Permittee must notify the appropriate MS4 owner or operator. The Permittee must report Dry Weather Overflows and backups into buildings within 24 hours, as required in subparts 2.c and 2.d below.

If any of the situations noted above impact shellfish growing and harvesting areas, the Permittee must also immediately notify the Department of Health, Shellfish Program at the following numbers:

Department of Health, Shellfish Program	360-236-3330 (business hours)
	360-789-8962 (after business hours)

**b. Report within five days**

The Permittee must also submit a written report within five business days of the time that the Permittee becomes aware of any reportable event under

subparts 2.a, above. Submit the written report electronically using the *Water Quality Permitting Portal – Permit Submittals* application under the “As Needed, 5-day Written Follow-up” submittal schedule. Include the ERTS number in the name of the file uploaded for this submittal. If the letter covers multiple ERTS reports, include the incident date in the file name (example file names: “ERTS XXXXXX follow-up” or “follow-up-MMDDYYYY incidents”).

The report must contain:

1. A description of the noncompliance and its cause.
2. The period of noncompliance, including exact dates and times.
3. The estimated time the Permittee expects the noncompliance to continue if not yet corrected.
4. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
5. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

**c. Reporting – Dry weather overflows**

Dry weather overflows (i.e. overflows from permitted CSO outfalls during periods of non-precipitation) are prohibited. The Permittee must report all dry weather overflows from CSO outfalls to Ecology at the ERTS phone number listed in subpart 2.a above as soon as the Permittee becomes aware of the dry weather overflow, but no later than 24 hours after becoming aware of the overflow. Submit a detailed, written report to Ecology within five (5) business days as required under subpart 2.b above, unless requested earlier by Ecology.

Corrective actions shall commence immediately and continue until the dry weather overflow has been eliminated.

**d. Reporting – Sewer backups into buildings**

The Permittee must report sewer backups into buildings (basements, low-lying first floors, garages, and toilets regardless of floor) to Ecology at the ERTS phone number listed in subpart 2.b above or via the online ERTS reporting form within 24 hours of becoming aware of the backup. The Permittee must submit a spreadsheet once per quarter that provides updated information on each backup reported during the quarter, if any occur. Submit the spreadsheet electronically using the *Water Quality Permitting Portal – Permit Submittals* application under the “As Needed, Basement Backup Follow-up” submittal schedule. The spreadsheet file name must identify the quarter and year for the report (example: “basement-2016Q1”). The Permittee must submit the report no later than the 15<sup>th</sup> day of the month following each reporting period. Quarterly

reporting periods are January through March, April through June, July through September, and October through December.

**e. All other permit violation reporting**

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S4.A ("Reporting"). Electronically attach written reports of other violations to the DMR for the reporting period in which the violation occurred. The reports must contain the information listed in subpart 2.b, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

***S4.H. Other reporting***

**a. Spills of oil or hazardous materials**

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and Chapter 173-303-145. You can obtain further instructions at the following website: <http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm>.

**b. Failure to submit relevant or correct facts**

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

***S4.I. Maintaining a copy of this permit***

The Permittee must keep a copy of this permit at their office and make it available upon request to Ecology inspectors.

**S5. Operation and maintenance**

The Permittee must at all times properly operate and maintain all facilities and systems of conveyance and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of this permit. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.

***S5.A. Operation and maintenance program***

The Permittee must:

1. Institute an adequate operation and maintenance program for the entire sewage system.
2. Keep maintenance records on all major electrical and mechanical components of the combined sewage system, including its pumping stations. Such records must clearly specify the frequency and type of maintenance recommended by



the manufacturer or a site-specific reliability-centered maintenance analysis and must show the frequency and type of maintenance performed.

3. Make maintenance records available for inspection at all times.

***S5.B. Short-term reduction***

If a Permittee contemplates a reduction in the level of operation or monitoring that would cause a violation on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee must:

1. Give written notification to Ecology, if possible, thirty (30) days prior to such activities.
2. Detail the reasons for, length of time of, and the potential effects of the reduced level of operation or monitoring.

This notification does not relieve the Permittee of its obligations under this permit. The Permittee must attempt to minimize the duration of short-term reductions and must attempt to restrict short-term reductions to dry weather periods.

***S5.C. Electrical power failure***

The Permittee must ensure that adequate safeguards prevent the discharge of untreated wastes or wastes not conveyed in accordance with the requirements of this permit during electrical power failure at sewage lift stations. Adequate safeguards include, but are not limited to, alternate power sources, standby generator(s), or retention of inadequately treated wastes, bypass pumping (for example, pumping of combined sewer flows with a means other than the pump station's pumps), or other equally protective means.

***S5.D. Prevent connection of inflow***

The Permittee must strictly enforce its sewer ordinances and not allow the connection of inflow sources (roof drains, foundation drains, etc.) to the sanitary sewer system.

***S5.E. Operations and maintenance (O&M) manual***

1. O&M manual submittal and requirements

The Permittee must:

- a. Review operations and maintenance manuals (O&M manuals) for facilities at least annually and update it as needed.
- b. Ensure operations personnel have access to and follow the instructions and procedures in the O&M manuals.

**S6. Requirements for controlled CSO outfalls**

***S6.A. CSOs identified as controlled***

Based on information presented in the City of Seattle's 2014 CSO Annual Report, the CSO outfalls listed below meet the requirement of "greatest reasonable

reduction” as defined in chapter WAC 173-245-020(22). Frequency of overflow events at these CSO outfalls, as a result of precipitation events, must continue to meet the performance standard.

Outfall No.	Street Address	Latitude	Longitude	Name of Receiving Water
12	NE 60th ST & NE WINDERMERE RD	47.67108	-122.25295	Lake Washington
14	4218 55TH AVE NE	47.65925	-122.26799	Lake Washington
16	3005 WEBSTER POINT RD NE	47.64845	-122.27815	Lake Washington
19	4501 27TH AVE NE	47.66103	-122.29782	Union Bay
24	E LEE ST & 42ND AVE E	47.63093	-122.27623	Lake Washington
25	E LEE ST & 42ND AVE E	47.63087	-122.27533	Lake Washington
27	1502 LAKE WASHINGTON BLVD	47.61492	-122.27996	Lake Washington
33	LAKESIDE AVE S & S CHARLES ST	47.59456	-122.28668	Lake Washington
38	STANLEY SAYRES PARK; 3808 LAKE WASHINGTON BLVD S	47.57139	-122.27555	Lake Washington
48	9722 RAINIER AVE S	47.51601	-122.25318	Lake Washington
57	6701 SEAVIEW AVE NW	47.67843	-122.40693	Puget Sound - Central
59	5637 SEAVIEW AVE NW	47.67029	-122.4059	Salmon Bay
61	2599 PERKINS LN W	47.64315	-122.41871	Elliott Bay
62	2599 PERKINS LN W	47.642	-122.41774	Elliott Bay
64	1499 32ND AVE W	47.63158	-122.39925	Elliott Bay
68	PIER 91 AT 1523 W GARFIELD ST	47.63307	-122.37919	Elliott Bay
70	ALASKAN WAY & UNIVERSITY ST	47.60581	-122.34053	Elliott Bay
72	199 ALASKAN WAY S	47.6009	-122.33671	Elliott Bay
78	SEACREST PARK; HARBOR AVE SW & FAIRMOUNT AVE SW	47.58752	-122.37723	Elliott Bay
80	DON ARMENI PARK; 112 HARBOR AVE SW	47.59327	-122.38206	Elliott Bay
83	ALKI BEACH PARK AT 1501 ALKI AVE SW	47.59125	-122.39415	Puget Sound - Central
85	3219 POINT PL SW	47.57676	-122.42008	Puget Sound - Central
88	5079 BEACH DR SW	47.55567	-122.40025	Puget Sound - Central
90	LOWMAN BEACH PARK; 7015 BEACH DR SW	47.53994	-122.39988	Puget Sound - Central
91	LINCOLN PARK; 8635 FAUNTLEROY WAY SW	47.52569	-122.39549	Puget Sound - Central
94	FAUNTLEROY FERRY TERMINAL; 4829 SW BARTON ST	47.52372	-122.39673	Puget Sound - Central
120	2770 WESTLAKE AVE N	47.64541	-122.34706	Lake Union
121	2046 WESTLAKE AVE N	47.63811	-122.34026	Lake Union
124	LAKE UNION PARK AT 800 WESTLAKE AVE N	47.62663	-122.33868	Lake Union
127	1099 FAIRVIEW AVE N	47.62965	-122.33123	Lake Union
129	TERRY PETTUS PARK; FAIRVIEW AVE E & E NEWTON ST	47.63681	-122.3295	Lake Union
130	LYNN ST PARK; FAIRVIEW AVE E & E LYNN ST	47.63959	-122.33037	Lake Union
131	2373 FAIRVIEW AVE E	47.64209	-122.33001	Lake Union
132	ROANOKE ST PARK; FAIRVIEW AVE E & E ROANOKE ST	47.64331	-122.32883	Lake Union
134	FAIRVIEW AVE E & E ALLISON ST	47.64924	-122.32501	Lake Union
135	3315 EASTLAKE AVE E	47.65208	-122.32092	Lake Union
136	3100 PORTAGE BAY PL E	47.64885	-122.31769	Lake Union
141	BRYANT SITE PARK AT 1215 NE BOAT ST	47.65086	-122.31563	Portage Bay
144	3790 LATONA AVE NE	47.65313	-122.32556	Lake Union
145	SUNNYSIDE AVE N BOAT RAMP; 2301 N NORTHLAKE WAY	47.65009	-122.33048	Lake Union
146	1430 N NORTHLAKE WAY	47.64722	-122.33962	Lake Union

Outfall No.	Street Address	Latitude	Longitude	Name of Receiving Water
148	4125 9TH AVE NW	47.65653	-122.36679	Lake Washington - Ship Canal
161	MAGNUSON PARK AT 6451 65TH AVE NE	47.67713	-122.24909	Lake Washington
170	2311 SW MYRTLE ST	47.53919	-122.36242	Longfellow Creek
175	FAIRVIEW AVE E & E GARFIELD ST	47.63389	-122.32722	Lake Union

***S6.B. Performance standard for controlled CSOs***

The performance standard for each controlled CSO outfall is not more than one discharge event per outfall per year on average, due to precipitation. Ecology evaluates compliance with the performance standard annually based on a 20-year moving averaging period. The Permittee must report the running 20-year average number of overflow events per year during this permit term from these CSO outfalls in the CSO Annual report required in Section S4.B.

***S6.C. Post-construction monitoring program***

The Permittee must continue to implement a post-construction compliance monitoring program to verify the effectiveness of CSO controls and to demonstrate that the controls comply with water quality standards and protect designated uses for the receiving water. The Permittee must follow the conditionally approved City of Seattle *2015 Post-Construction Monitoring Program* (2015 Plan) and submit to Ecology for review and approval any proposed changes to this plan. The plan proposes monitoring of flow at all outfalls and ambient monitoring near select outfalls.

The 2015 plan requires monitoring of ambient water quality and sediment quality at certain surrogate outfalls. Ecology considers the surrogate outfalls as representative of nearby outfalls in the same receiving water body. According to the 2015 plan, the Permittee must conduct ambient water quality sampling at the following outfalls: Windermere (#13), North Union Bay (#18), Magnolia (#68), and Barton (#95). In addition, the Permittee must sample sediments in accordance with the 2015 plan and respective SAPs. Post-construction monitoring of sediments is required with the completion of CSO projects once the CSO has been deemed controlled unless sufficient recent data exists that shows there are no SMS exceedances. An exception is made if an area-wide cleanup project is planned with sediment sampling scheduled at cleanup project completion.

The following sections describe protocols the Permittee must follow to prepare for and to report the findings of ambient monitoring at each surrogate outfall. The Permittee must submit all monitoring plans and reports electronically (preferably as a PDF) using the *Water Quality Permitting Portal – Permit Submittals* application.

### 1. Post-Construction Monitoring Program Quality Assurance Project Plans

Prior to conducting ambient water quality compliance monitoring program, the Permittee must develop a quality assurance project plan (QAPP) that details the monitoring protocols the Permittee will follow to determine overflow frequency and volume, to assess compliance with the narrative water quality standards and to determine potential impacts to sediments (see conditions S6.C.2 and 3 for sediment monitoring requirements). The Permittee must submit PCMP-QAPPs to Ecology for review and approval according to the following schedule. The Permittee may submit the required QAPP and the sediment sampling analysis plan described below as a single document.

Outfall	Due Date
95	May 31, 2016
68	June 30, 2016
18	September 30, 2017
QAPP not required for outfall 13; Permittee submitted plan in August 2015, and it is undergoing Ecology review.	

### 2. Sediment Sampling and Analysis Plans

In conjunction with the QAPP required above, the Permittee must submit a Sediment Sampling and Analysis Plan (SAP) to Ecology for review and approval for each outfall. The Permittee must submit the SAP for sediment monitoring at least eight months prior to sediment testing. The purpose of the plan is to describe how the Permittee will characterize sediment quality (the nature and extent of chemical contamination and biological toxicity) in the vicinity of the discharge locations. The sediment SAP must follow the guidance provided in the *Sediment Cleanup User's Manual II* (Ecology, 2015). The Permittee must list method detection limits in the plan.

### 3. Sediment Sampling Data Reports

Following Ecology approval of the Sediment Sampling and Analysis Plan, the Permittee must collect and analyze sediments for controlled CSO outfalls 13, 18, 68, and 95. The Permittee must electronically submit to Ecology a Sediment Data Report containing the results of the sediment sampling and analysis according to the following schedule. The Sediment Data Report must conform to the approved sediment sampling and analysis plan.

Outfall	Due Date
13	December 31 2018
68	June 30, 2019
95	July 31, 2019
18	January 31, 2021

In addition to a Sediment Data Report, the Permittee must submit the sediment chemical and biological data (if applicable) to Ecology's EIM database (<http://www.ecy.wa.gov/eim/>). The Permittee must also use Ecology's MyEIM tools to confirm the accuracy of the submitted data (<http://www.ecy.wa.gov/eim/MyEIM.htm>).

#### **4. Post-Construction Monitoring Data Report**

The Permittee must submit to Ecology by October 30, 2020 a post-construction monitoring summary data report that provides validation that each CSO outfall listed as controlled in Condition S6.A, as well as those brought under control during the permit term, complies with the performance requirements and with state water and sediment quality standards. The report must conform to the approved *CSO Post-Construction Monitoring Program* and associated QAPPs.

If sampling near any surrogate outfalls reveal exceedances of SMS, the report must identify whether the Permittee knows of area-wide clean-up activities in the vicinity, including any clean-up actions planned or that have been performed in the past. As part of the identification of existing clean-up activities, the report must identify the chemicals targeted by the cleanup activity, discuss the availability of any pre- and post-cleanup monitoring results, show the clean-up project schedule and post-project monitoring schedule, and provide a list of parties involved in the clean-up project.

#### **S7. CSO reduction plan amendments and engineering documents**

##### ***S7.A. Combined sewer overflow reduction plan amendment***

The Permittee must submit to Ecology an amendment to its *2015 Plan to Protect Seattle's Waterways – Long Term Control Plan* (also referred to as a CSO Reduction Plan) for review and approval by October 30, 2020. The amendment must comply with the requirements of WAC 173-245-090(2)(a) and (c).

1. The CSO Reduction Plan Amendment must provide an assessment of completed control projects and identify which of the permitted CSO outfalls can be categorized as meeting the Performance Standard for Controlled CSOs as defined in Condition S6.B. The Permittee must determine the controlled status based on historical long-term discharge data (up to 20 years – past and present data), modeling, and/or other reasonable methods as approved by Ecology.
2. For outfalls that do not meet the Performance Standard for Controlled CSOs as defined in Condition S6.B, the Permittee must include in the amendment a list of projects from the approved Long-Term Control Plan that the Permittee will complete during the next five-year permit term.
3. The CSO Control Plan Amendment may not propose changes to the project list or implementation schedule in the approved Long-Term Control Plan unless modified according to allowances in the 2013 Consent Decree for Civil Action No. 2:13-cv-00678.

##### ***S7.B. Engineering reports and plans and specifications for CSO storage and pump station projects***

The Permittee must submit to Ecology an engineering report for each specific CSO reduction construction project. Engineering documents associated with each CSO reduction project must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to construction.



The report must:

1. Specify any contracts, ordinances, methods of financing, or any other arrangements necessary to achieve this objective.
2. Identify the potential hydraulic impact(s) of the project on downstream City-owned wastewater conveyance facilities as well as any impact(s) to King County's conveyance and treatment systems.
3. Describe how a project will achieve the performance standard and explicitly state the expected frequency of overflow event(s) per year per associated outfall after the CSO reduction construction project has been completed.

For each specific CSO reduction construction project, the Permittee must prepare and submit approvable plans and specifications to Ecology for review and approval in accordance with Chapter 173-240-070 WAC. Plans and specifications must be approved prior to construction.

Prior to the start of construction, the Permittee must submit to Ecology a construction quality assurance plan as required by Chapter 173-240-075 WAC.

#### **S8. Compliance schedule**

In order to achieve the greatest reasonable reduction of combined sewer overflows at the earliest possible date, the Permittee must complete the elements of the approved Long Term Control Plan identified in the table below by the specified dates.

<b>A. West Ship Canal Tunnel – Outfalls 147, 150, 151, 152, and 174</b>		
1.	Submit draft engineering report for the West Ship Canal Tunnel project for review and comment	March 31, 2017
2.	Submit a final engineering report for the West Ship Canal Tunnel project for approval	December 31, 2017
3.	Submit 90% draft plans and specifications for the West Ship Canal Tunnel project for review and comment	March 31, 2020
4.	Submit final plans and specifications for the West Ship Canal Tunnel project for approval	December 31, 2020
Permittee must include planning and design for rehabilitation of outfall 151 as part of the West Ship Canal Tunnel Project.		
<b>B. Central Waterfront Storage – Outfall 69</b>		
1.	Submit a draft engineering report for the Central Waterfront Storage project for review and comment	June 30, 2019
2.	Submit a final engineering report for the Central Waterfront Storage Project for approval	December 31, 2019
<b>C. Sewer System Improvement Projects</b>		
1.	Submit a report describing the scope of work for the Leschi Sewer System Improvement Projects (outfalls 28, 29, 31, 32, and 36).	March 31, 2017
2.	Complete all Leschi Sewer System Improvement projects (outfalls 28, 29, 31, 32, and 36).	December 29, 2017
3.	Submit a report describing the scope of work for the North Union Bay Sewer System Improvement Projects (outfall 18).	March 30, 2018

4.	Complete all North Union Bay Sewer System Improvement projects (outfall 18).	December 31, 2018
5.	Submit a report describing the scope of work for the Delridge Sewer System Improvement Projects (outfall 99).	March 29, 2019
6.	Complete all Delridge Sewer System Improvement projects (outfall 99).	December 31, 2019
7.	Submit a report describing the scope of work for the Montlake Sewer System Improvement Projects (outfalls 20, and 139/140).	March 31, 2020
8.	Submit a report describing the scope of work for the East Waterway Sewer System Improvement Projects (outfall 107).	March 31, 2020
9.	Submit a report describing the scope of work for the Magnolia Sewer System Improvement Projects (outfall 60).	March 31, 2020
10.	Submit a report describing the scope of work for the Portage Bay Sewer System Improvement Projects (outfall 138).	March 31, 2020
11.	Complete all Montlake Sewer System Improvement Projects (outfalls 20, and 139/140).	December 31, 2020
12.	Complete all East Waterway Sewer System Improvement projects (outfall 107).	December 31, 2020
13.	Complete all Magnolia Sewer System Improvement Projects (outfall 60).	December 31, 2020
14.	Complete all Portage Bay Sewer System Improvement Projects (outfall 138).	December 31, 2020

**D. Integrated Plan Projects**

1.	NDS Partnering – Begin Construction	July 17, 2019
2.	Street Sweeping Expansion Arterials – Complete Post-Construction Monitoring	September 30, 2019

**E. Outfall Rehabilitation Projects**

1.	Complete replacement of trash rack on Outfall 99	March 29, 2019
2.	Complete repair of bedding and foundation material surrounding land section and bulkhead of outfall 171	December 31, 2019
3.	Replace land section of outfall 174	March 31, 2017

**S9. Outfall rehabilitation plan and inventory**

The Permittee must conduct an underwater analysis of five (5) previously uninspected outfalls to assess their physical condition and to determine the need for rehabilitation. By October 30, 2020, the Permittee must submit to Ecology for review and approval an outfall rehabilitation plan that describes outfalls to be repaired or replaced during the next permit cycle.

In addition, the Permittee must complete a desktop evaluation of all CSO outfalls to determine the current number of discharge points from their system. The evaluation must identify outfalls located in close proximity to each other that share a hydraulic connection to a common control structure. The Permittee must include the results of this evaluation in the outfall rehabilitation report required above.

**S10. Application for permit renewal**

The Permittee must submit an application for renewal of this permit by October 30, 2020.

## General Conditions

### G1. Signatory requirements

1. All applications, reports, or information submitted to Ecology must be signed and certified.
  - a. In the case of corporations, by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
    - A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or
    - The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
  - b. In the case of a partnership, by a general partner.
  - c. In the case of sole proprietorship, by the proprietor.
  - d. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

Applications for permits for domestic wastewater facilities that are either owned or operated by, or under contract to, a public entity shall be submitted by the public entity.

2. All reports required by this permit and other information requested by Ecology must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described above and submitted to Ecology.
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to authorization. If an authorization under paragraph G1.2, above, is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G1.2, above, must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

## **G2. Right of inspection and entry**

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

1. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.
2. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.
3. To inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.
4. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

## **G3. Permit actions**

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 40 CFR 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

1. The following are causes for terminating this permit during its term, or for denying a permit renewal application:
  - a. Violation of any permit term or condition.
  - b. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.
  - c. A material change in quantity or type of waste disposal.
  - d. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination.
  - e. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit.

- f. Nonpayment of fees assessed pursuant to RCW 90.48.465.
  - g. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
- 2. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:
  - a. A material change in the condition of the waters of the state.
  - b. New information not available at the time of permit issuance that would have justified the application of different permit conditions.
  - c. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.
  - d. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.
  - e. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.
  - f. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.
  - g. Incorporation of an approved local pretreatment program into a municipality's permit.
- 3. The following are causes for modification or alternatively revocation and reissuance:
  - a. When cause exists for termination for reasons listed in 1.a through 1.g of this section, and Ecology determines that modification or revocation and reissuance is appropriate.
  - b. When Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G7) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

#### **G4. Reporting planned changes**

The Permittee must, as soon as possible, but no later than sixty (60) days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in:

- 1. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).
- 2. A significant change in the nature or an increase in quantity of pollutants discharged.
- 3. A significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.



**G5. Plan review required**

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications must be submitted to Ecology for approval in accordance with chapter 173-240 WAC. Engineering reports, plans, and specifications must be submitted at least sixty (60) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities must be constructed and operated in accordance with the approved plans.

**G6. Compliance with other laws and statutes**

Nothing in this permit excuses the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

**G7. Transfer of this permit**

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee must notify the succeeding owner or controller of the existence of this permit by letter, a copy of which must be forwarded to Ecology.

1. Transfers by Modification

Except as provided in paragraph (2) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

2. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

- a. The Permittee notifies Ecology at least thirty (30) days in advance of the proposed transfer date.
- b. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.
- c. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

**G8. Reduced production for compliance**

The Permittee, in order to maintain compliance with its permit, must control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

**G9. Removed substances**

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

**G10. Duty to provide information**

The Permittee must submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology upon request, copies of records required to be kept by this permit.

**G11. Other requirements of 40 CFR**

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

**G12. Additional monitoring**

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

**G13. Payment of fees**

The Permittee must submit payment of fees associated with this permit as assessed by Ecology.

**G14. Penalties for violating permit conditions**

Any person who is found guilty of willfully violating the terms and conditions of this permit is deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit may incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such violation is a separate and distinct offense, and in case of a continuing violation, every day's continuance is deemed to be a separate and distinct violation.

**G15. Upset**

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limits if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An upset occurred and that the Permittee can identify the cause(s) of the upset.
2. The permitted facility was being properly operated at the time of the upset.
3. The Permittee submitted notice of the upset as required in Special Condition S4.G.
4. The Permittee complied with any remedial measures required under S4.G of this permit.

In any enforcement action the Permittee seeking to establish the occurrence of an upset has the burden of proof.

**G16. Property rights**

This permit does not convey any property rights of any sort, or any exclusive privilege.

**G17. Duty to comply**

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

**G18. Toxic pollutants**

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

**G19. Penalties for tampering**

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two (2) years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

**G20. Compliance schedules**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than fourteen (14) days following each schedule date.

**G21. Service agreement review**

The Permittee must submit to Ecology any proposed service agreements and proposed revisions or updates to existing agreements for the operation of any wastewater treatment facility covered by this permit. The review is to ensure consistency with chapters 90.46 and 90.48 RCW as required by RCW 70.150.040(9). In the event that Ecology does not comment within a thirty-day (30) period, the Permittee may assume consistency and proceed with the service agreement or the revised/updated service agreement.

## APPENDIX A

### **LIST OF POLLUTANTS WITH ANALYTICAL METHODS, DETECTION LIMITS AND QUANTITATION LEVELS**

The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table for permit and application required monitoring unless:

- Another permit condition specifies other methods, detection levels, or quantitation levels.
- The method used produces measurable results in the sample and EPA has listed it as an EPA-approved method in 40 CFR Part 136.

If the Permittee uses an alternative method, not specified in the permit and as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

If the Permittee is unable to obtain the required DL and QL in its effluent due to matrix effects, the Permittee must submit a matrix-specific detection limit (MDL) and a quantitation limit (QL) to Ecology with appropriate laboratory documentation.

When the permit requires the Permittee to measure the base neutral compounds in the list of priority pollutants, it must measure all of the base neutral pollutants listed in the table below. The list includes EPA required base neutral priority pollutants and several additional polynuclear aromatic hydrocarbons (PAHs). The Water Quality Program added several PAHs to the list of base neutrals below from Ecology's Persistent Bioaccumulative Toxics (PBT) List. It only added those PBT parameters of interest to Appendix A that did not increase the overall cost of analysis unreasonably.

Ecology added this appendix to the permit in order to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost.

The lists below include conventional pollutants (as defined in CWA section 502(6) and 40 CFR Part 122.), toxic or priority pollutants as defined in CWA section 307(a)(1) and listed in 40 CFR Part 122 Appendix D, 40 CFR Part 401.15 and 40 CFR Part 423 Appendix A), and nonconventionals. 40 CFR Part 122 Appendix D (Table V) also identifies toxic pollutants and hazardous substances which are required to be reported by dischargers if expected to be present. This permit appendix A list does not include those parameters.

#### **CONVENTIONAL POLLUTANTS**

<b>Pollutant</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
Biochemical Oxygen Demand		SM5210-B		2 mg/L
Biochemical Oxygen Demand, Soluble		SM5210-B <sup>3</sup>		2 mg/L
Fecal Coliform		SM 9221E,9222	N/A	Specified in method - sample aliquot dependent
Oil and Grease (HEM) (Hexane Extractable Material)		1664 A or B	1,400	5,000
pH		SM4500-H <sup>+</sup> B	N/A	N/A
Total Suspended Solids		SM2540-D		5 mg/L



<b>NONCONVENTIONAL POLLUTANTS</b>				
<b>Pollutant &amp; CAS No. (if available)</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
Alkalinity, Total		SM2320-B		5 mg/L as CaCO <sub>3</sub>
Aluminum, Total	7429-90-5	200.8	2.0	10
Ammonia, Total (as N)		SM4500-NH <sub>3</sub> -B and C/D/E/G/H		20
Barium Total	7440-39-3	200.8	0.5	2.0
BTEX (benzene +toluene + ethylbenzene + m,o,p xylenes)		EPA SW 846 8021/8260	1	2
Boron, Total	7440-42-8	200.8	2.0	10.0
Chemical Oxygen Demand		SM5220-D		10 mg/L
Chloride		SM4500-Cl B/C/D/E and SM4110 B		Sample and limit dependent
Chlorine, Total Residual		SM4500 Cl G		50.0
Cobalt, Total	7440-48-4	200.8	0.05	0.25
Color		SM2120 B/C/E		10 color units
Dissolved oxygen		SM4500-OC/OG		0.2 mg/L
Flow		Calibrated device		
Fluoride	16984-48-8	SM4500-F E	25	100
Hardness, Total		SM2340B		200 as CaCO <sub>3</sub>
Iron, Total	7439-89-6	200.7	12.5	50
Magnesium, Total	7439-95-4	200.7	10	50
Manganese, Total	7439-96-5	200.8	0.1	0.5
Molybdenum, Total	7439-98-7	200.8	0.1	0.5
Nitrate + Nitrite Nitrogen (as N)		SM4500-NO <sub>3</sub> -E/F/H		100
Nitrogen, Total Kjeldahl (as N)		SM4500-N <sub>org</sub> B/C and SM4500NH <sub>3</sub> - B/C/D/EF/G/H		300
NWTPH Dx <sup>4</sup>		Ecology NWTPH Dx	250	250
NWTPH Gx <sup>5</sup>		Ecology NWTPH Gx	250	250
Phosphorus, Total (as P)		SM 4500 PB followed by SM4500-PE/PF	3	10
Salinity		SM2520-B		3 practical salinity units or scale (PSU or PSS)
Settleable Solids		SM2540 -F		Sample and limit dependent
Soluble Reactive Phosphorus (as P)		SM4500-P E/F/G	3	10
Sulfate (as mg/L SO <sub>4</sub> )		SM4110-B		0.2 mg/L
Sulfide (as mg/L S)		SM4500-S <sup>2</sup> F/D/E/G		0.2 mg/L
Sulfite (as mg/L SO <sub>3</sub> )		SM4500-SO <sub>3</sub> B		2 mg/L
Temperature (max. 7-day avg.)		Analog recorder or use micro-recording devices known as thermistors		0.2° C
Tin, Total	7440-31-5	200.8	0.3	1.5
Titanium, Total	7440-32-6	200.8	0.5	2.5
Total Coliform		SM 9221B, 9222B, 9223B	N/A	Specified in method - sample aliquot dependent
Total Organic Carbon		SM5310-B/C/D		1 mg/L
Total dissolved solids		SM2540 C		20 mg/L

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>METALS, CYANIDE &amp; TOTAL PHENOLS</b>					
Antimony, Total	114	7440-36-0	200.8	0.3	1.0
Arsenic, Total	115	7440-38-2	200.8	0.1	0.5
Beryllium, Total	117	7440-41-7	200.8	0.1	0.5
Cadmium, Total	118	7440-43-9	200.8	0.05	0.25
Chromium (hex) dissolved	119	18540-29-9	SM3500-Cr C	0.3	1.2
Chromium, Total	119	7440-47-3	200.8	0.2	1.0
Copper, Total	120	7440-50-8	200.8	0.4	2.0
Lead, Total	122	7439-92-1	200.8	0.1	0.5
Mercury, Total	123	7439-97-6	1631E	0.0002	0.0005
Nickel, Total	124	7440-02-0	200.8	0.1	0.5
Selenium, Total	125	7782-49-2	200.8	1.0	1.0
Silver, Total	126	7440-22-4	200.8	0.04	0.2
Thallium, Total	127	7440-28-0	200.8	0.09	0.36
Zinc, Total	128	7440-66-6	200.8	0.5	2.5
Cyanide, Total	121	57-12-5	335.4	5	10
Cyanide, Weak Acid Dissociable	121		SM4500-CN I	5	10
Cyanide, Free Amenable to Chlorination (Available Cyanide)	121		SM4500-CN G	5	10
Phenols, Total	65		EPA 420.1		50

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>ACID COMPOUNDS</b>					
2-Chlorophenol	24	95-57-8	625	1.0	2.0
2,4-Dichlorophenol	31	120-83-2	625	0.5	1.0
2,4-Dimethylphenol	34	105-67-9	625	0.5	1.0
4,6-dinitro-o-cresol (2-methyl-4,6-dinitrophenol)	60	534-52-1	625/1625B	1.0	2.0
2,4 dinitrophenol	59	51-28-5	625	1.0	2.0
2-Nitrophenol	57	88-75-5	625	0.5	1.0
4-Nitrophenol	58	100-02-7	625	0.5	1.0
Parachlorometa cresol (4-chloro-3-methylphenol)	22	59-50-7	625	1.0	2.0
Pentachlorophenol	64	87-86-5	625	0.5	1.0
Phenol	65	108-95-2	625	2.0	4.0
2,4,6-Trichlorophenol	21	88-06-2	625	2.0	4.0

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>VOLATILE COMPOUNDS</b>					
Acrolein	2	107-02-8	624	5	10
Acrylonitrile	3	107-13-1	624	1.0	2.0
Benzene	4	71-43-2	624	1.0	2.0
Bromoform	47	75-25-2	624	1.0	2.0
Carbon tetrachloride	6	56-23-5	624/601 or SM6230B	1.0	2.0
Chlorobenzene	7	108-90-7	624	1.0	2.0
Chloroethane	16	75-00-3	624/601	1.0	2.0
2-Chloroethylvinyl Ether	19	110-75-8	624	1.0	2.0
Chloroform	23	67-66-3	624 or SM6210B	1.0	2.0

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>VOLATILE COMPOUNDS</b>					
Dibromochloromethane (chlorodibromomethane)	51	124-48-1	624	1.0	2.0
1,2-Dichlorobenzene	25	95-50-1	624	1.9	7.6
1,3-Dichlorobenzene	26	541-73-1	624	1.9	7.6
1,4-Dichlorobenzene	27	106-46-7	624	4.4	17.6
Dichlorobromomethane	48	75-27-4	624	1.0	2.0
1,1-Dichloroethane	13	75-34-3	624	1.0	2.0
1,2-Dichloroethane	10	107-06-2	624	1.0	2.0
1,1-Dichloroethylene	29	75-35-4	624	1.0	2.0
1,2-Dichloropropane	32	78-87-5	624	1.0	2.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) <sup>6</sup>	33	542-75-6	624	1.0	2.0
Ethylbenzene	38	100-41-4	624	1.0	2.0
Methyl bromide (Bromomethane)	46	74-83-9	624/601	5.0	10.0
Methyl chloride (Chloromethane)	45	74-87-3	624	1.0	2.0
Methylene chloride	44	75-09-2	624	5.0	10.0
1,1,2,2-Tetrachloroethane	15	79-34-5	624	1.9	2.0
Tetrachloroethylene	85	127-18-4	624	1.0	2.0
Toluene	86	108-88-3	624	1.0	2.0
1,2-Trans-Dichloroethylene (Ethylene dichloride)	30	156-60-5	624	1.0	2.0
1,1,1-Trichloroethane	11	71-55-6	624	1.0	2.0
1,1,2-Trichloroethane	14	79-00-5	624	1.0	2.0
Trichloroethylene	87	79-01-6	624	1.0	2.0
Vinyl chloride	88	75-01-4	624/SM6200B	1.0	2.0

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)</b>					
Acenaphthene	1	83-32-9	625	0.2	0.4
Acenaphthylene	77	208-96-8	625	0.3	0.6
Anthracene	78	120-12-7	625	0.3	0.6
Benzidine	5	92-87-5	625	12	24
Benzyl butyl phthalate	67	85-68-7	625	0.3	0.6
Benzo(a)anthracene	72	56-55-3	625	0.3	0.6
Benzo(b)fluoranthene (3,4-benzofluoranthene) <sup>7</sup>	74	205-99-2	610/625	0.8	1.6
<b>Benzo(j)fluoranthene<sup>7</sup></b>		<b>205-82-3</b>	625	0.5	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) <sup>7</sup>	75	207-08-9	610/625	0.8	1.6
<b>Benzo(r,s,t)pentaphene</b>		<b>189-55-9</b>	625	0.5	1.0
Benzo(a)pyrene	73	50-32-8	610/625	0.5	1.0
Benzo(ghi)Perylene	79	191-24-2	610/625	0.5	1.0
Bis(2-chloroethoxy)methane	43	111-91-1	625	5.3	21.2
Bis(2-chloroethyl)ether	18	111-44-4	611/625	0.3	1.0
Bis(2-chloroisopropyl)ether	42	39638-32-9	625	0.3	0.6
Bis(2-ethylhexyl)phthalate	66	117-81-7	625	0.1	0.5
4-Bromophenyl phenyl ether	41	101-55-3	625	0.2	0.4
2-Chloronaphthalene	20	91-58-7	625	0.3	0.6
4-Chlorophenyl phenyl ether	40	7005-72-3	625	0.3	0.5
Chrysene	76	218-01-9	610/625	0.3	0.6

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)</b>					
<b>Dibenzo (a,h)acridine</b>		<b>226-36-8</b>	610M/625M	2.5	10.0
<b>Dibenzo (a,i)acridine</b>		<b>224-42-0</b>	610M/625M	2.5	10.0
Dibenzo(a-h)anthracene (1,2,5,6-dibenzanthracene)	82	53-70-3	625	0.8	1.6
<b>Dibenzo(a,e)pyrene</b>		<b>192-65-4</b>	610M/625M	2.5	10.0
<b>Dibenzo(a,h)pyrene</b>		<b>189-64-0</b>	625M	2.5	10.0
3,3-Dichlorobenzidine	28	91-94-1	605/625	0.5	1.0
Diethyl phthalate	70	84-66-2	625	1.9	7.6
Dimethyl phthalate	71	131-11-3	625	1.6	6.4
Di-n-butyl phthalate	68	84-74-2	625	0.5	1.0
2,4-dinitrotoluene	35	121-14-2	609/625	0.2	0.4
2,6-dinitrotoluene	36	606-20-2	609/625	0.2	0.4
Di-n-octyl phthalate	69	117-84-0	625	0.3	0.6
1,2-Diphenylhydrazine (as Azobenzene)	37	122-66-7	1625B	5.0	20
Fluoranthene	39	206-44-0	625	0.3	0.6
Fluorene	80	86-73-7	625	0.3	0.6
Hexachlorobenzene	9	118-74-1	612/625	0.3	0.6
Hexachlorobutadiene	52	87-68-3	625	0.5	1.0
Hexachlorocyclopentadiene	53	77-47-4	1625B/625	0.5	1.0
Hexachloroethane	12	67-72-1	625	0.5	1.0
Indeno(1,2,3-cd)Pyrene	83	193-39-5	610/625	0.5	1.0
Isophorone	54	78-59-1	625	0.5	1.0
<b>3-Methyl cholanthrene</b>		<b>56-49-5</b>	625	2.0	8.0
Naphthalene	55	91-20-3	625	0.3	0.6
Nitrobenzene	56	98-95-3	625	0.5	1.0
N-Nitrosodimethylamine	61	62-75-9	607/625	2.0	4.0
N-Nitrosodi-n-propylamine	63	621-64-7	607/625	0.5	1.0
N-Nitrosodiphenylamine	62	86-30-6	625	0.5	1.0
<b>Perylene</b>		<b>198-55-0</b>	625	1.9	7.6
Phenanthrene	81	85-01-8	625	0.3	0.6
Pyrene	84	129-00-0	625	0.3	0.6
1,2,4-Trichlorobenzene	8	120-82-1	625	0.3	0.6

<b>PRIORITY POLLUTANT</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>DIOXIN</b>					
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (2,3,7,8 TCDD)	129	1746-01-6	1613B	1.3 pg/L	5 pg/L

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>PESTICIDES/PCBs</b>					
Aldrin	89	309-00-2	608	0.025	0.05
alpha-BHC	102	319-84-6	608	0.025	0.05
beta-BHC	103	319-85-7	608	0.025	0.05
gamma-BHC (Lindane)	104	58-89-9	608	0.025	0.05
delta-BHC	105	319-86-8	608	0.025	0.05
Chlordane <sup>8</sup>	91	57-74-9	608	0.025	0.05
4,4'-DDT	92	50-29-3	608	0.025	0.05
4,4'-DDE	93	72-55-9	608	0.025	0.05
4,4' DDD	94	72-54-8	608	0.025	0.05
Dieldrin	90	60-57-1	608	0.025	0.05

<b>PRIORITY POLLUTANTS</b>	<b>PP #</b>	<b>CAS Number (if available)</b>	<b>Recommended Analytical Protocol</b>	<b>Detection (DL)<sup>1</sup> µg/L unless specified</b>	<b>Quantitation Level (QL)<sup>2</sup> µg/L unless specified</b>
<b>PESTICIDES/PCBs</b>					
alpha-Endosulfan	95	959-98-8	608	0.025	0.05
beta-Endosulfan	96	33213-65-9	608	0.025	0.05
Endosulfan Sulfate	97	1031-07-8	608	0.025	0.05
Endrin	98	72-20-8	608	0.025	0.05
Endrin Aldehyde	99	7421-93-4	608	0.025	0.05
Heptachlor	100	76-44-8	608	0.025	0.05
Heptachlor Epoxide	101	1024-57-3	608	0.025	0.05
PCB-1242 <sup>9</sup>	106	53469-21-9	608	0.25	0.5
PCB-1254	107	11097-69-1	608	0.25	0.5
PCB-1221	108	11104-28-2	608	0.25	0.5
PCB-1232	109	11141-16-5	608	0.25	0.5
PCB-1248	110	12672-29-6	608	0.25	0.5
PCB-1260	111	11096-82-5	608	0.13	0.5
PCB-1016 <sup>9</sup>	112	12674-11-2	608	0.13	0.5
Toxaphene	113	8001-35-2	608	0.24	0.5

1. **Detection level (DL)** or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.
2. **Quantitation Level (QL)** also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to  $(1, 2, \text{ or } 5) \times 10^n$ , where n is an integer (64 FR 30417).  
ALSO GIVEN AS:  
The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency, December 2007).
3. **Soluble Biochemical Oxygen Demand** method note: First, filter the sample through a Millipore Nylon filter (or equivalent) - pore size of 0.45-0.50 µm (prep all filters by filtering 250 ml of laboratory grade deionized water through the filter and discard). Then, analyze sample as per method 5210-B.
4. **NWTPH Dx** - Northwest Total Petroleum Hydrocarbons Diesel Extended Range – see <http://www.ecy.wa.gov/biblio/97602.html>
5. **NWTPH Gx** - Northwest Total Petroleum Hydrocarbons Gasoline Extended Range – see <http://www.ecy.wa.gov/biblio/97602.html>
6. **1, 3-dichloropropylene (mixed isomers)** You may report this parameter as two separate parameters: cis-1, 3-dichloropropene (10061-01-5) and trans-1, 3-dichloropropene (10061-02-6).
7. **Total Benzofluoranthenes** - Because Benzo(b)fluoranthene, Benzo(j)fluoranthene and Benzo(k)fluoranthene co-elute you may report these three isomers as total benzofluoranthenes.
8. **Chlordane** – You may report alpha-chlordane (5103-71-9) and gamma-chlordane (5103-74-2) in place of chlordane (57-74-9). If you report alpha and gamma-chlordane, the DL/PQLs that apply are 0.025/0.050.
9. **PCB 1016 & PCB 1242** – You may report these two PCB compounds as one parameter called PCB 1016/1242.

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Issuance Date: August 1, 2012  
Effective Date: August 1, 2013  
Expiration Date: July 31, 2018  
1<sup>st</sup> Modification Date: January 16, 2015  
2<sup>nd</sup> Modification Date: August 19, 2016

## **PHASE I MUNICIPAL STORMWATER PERMIT**

National Pollutant Discharge Elimination System and  
State Waste Discharge General Permit  
for Discharges from  
Large and Medium Municipal Separate Storm Sewer Systems

**State of Washington**  
**Department of Ecology**  
Olympia, Washington 98504-7600

In compliance with the provisions of  
The State of Washington Water Pollution Control Law  
Chapter 90.48 Revised Code of Washington  
and  
The Federal Water Pollution Control Act  
(The Clean Water Act)  
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified, or revoked, Permittees that have properly obtained coverage under this permit are authorized to discharge to waters of the state in accordance with the special and general conditions which follow.

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## APPENDICES

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**SPECIAL CONDITIONS****S1. PERMIT COVERAGE AND PERMITTEES****A. Geographic Area of Permit Coverage**

This permit covers discharges from Large and Medium Municipal Separate Storm Sewer Systems (MS4s) as established at Title 40 CFR 122.26, except for the Washington State Department of Transportation's MS4s.

For Secondary Permittees required to obtain coverage under this permit, the minimum geographic area of coverage includes the portion of the MS4 which is located within the unincorporated areas of Clark, King, Snohomish, and Pierce Counties and the incorporated areas of the cities of Seattle and Tacoma. The Washington State Department of Ecology (Ecology) may establish additional geographic areas of coverage specific to an individual Secondary permittee.

**B. The following cities and counties have submitted a Duty to Reapply-Notice of Intent (NOI) for coverage to Ecology prior to August 19, 2011, and have coverage as Permittees, beginning on the effective date of the permit:**

1. The City of Tacoma and the City of Seattle.
2. Clark, King, Pierce, and Snohomish Counties.

**C. The following entities have submitted a Duty to Reapply-Notice of Intent (NOI) for coverage to Ecology prior to August 19, 2011, and have coverage as Secondary Permittees, beginning on the effective date of the permit:**

1. Port of Seattle, excluding Seattle-Tacoma International Airport.
2. Port of Tacoma.
3. The University of Washington, Seattle; Seattle School District #1; Metropolitan Park District of Tacoma; Washington State Military Department; Tacoma Community College; Washington State Department of Corrections; Larch Corrections Center, and Washington Corrections Center for Women.

**D. Unless otherwise noted, the term "Permittee" includes city, county, or town Permittee, port Permittee, Co-Permittee, Secondary Permittee, and New Secondary Permittee.****E. Coverage for New Secondary Permittees**

1. Entities meeting the requirements in S1.E.1.a-b, below, are required to apply for and obtain coverage under this Permit. Upon application and coverage the following entities will have coverage under this Permit as New Secondary Permittees.

- a. Active drainage, diking, flood control, or diking and drainage districts located in the Cities or unincorporated portions of the Counties listed in S1.B above, which own or operate MS4s serving non-agricultural land uses; and were not covered by the permit prior to August 1, 2013.
- b. Other owners or operators of MS4s located in the Cities or unincorporated portions of the Counties listed in S1.B above; and were not covered by the permit prior to August 1, 2013.

2. Application Requirements:

- a. Submit a Notice of Intent (NOI) for Coverage under National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater General Permit provided in Appendix 5 and provide public notice of the application for coverage in accordance with WAC 173-226-130. The NOI shall constitute the application for coverage. Ecology will notify applicants in writing of their status concerning coverage under this permit within 90 days of Ecology's receipt of a complete NOI.
  - b. Each Permittee applying as Co-Permittee shall submit a NOI provided in Appendix 5. The NOI shall clearly identify the areas of the MS4 for which the Co-Permittee is responsible.
- F. All MS4s owned or operated by Permittees named in S1.B and located in another city or county area requiring coverage under this permit or either the Western Washington Phase II Municipal Stormwater Permit or the Eastern Washington Phase II Municipal Stormwater Permit are also covered under this permit.

## **S2. AUTHORIZED DISCHARGES**

- A. This permit authorizes the discharge of stormwater to surface waters and to ground waters of the state from MS4s owned or operated by each Permittee covered under this permit in the geographic area covered by this permit pursuant to S1.A subject to the following limitations:
  1. Discharges to ground waters of the state through facilities regulated under the Underground Injection Control (UIC) program, chapter 173-218 WAC, are not authorized under this permit.
  2. Discharges to ground waters not subject to regulation under the federal Clean Water Act are authorized in this permit only under state authorities, Chapter 90.48 RCW, the Water Pollution Control Act.
- B. This permit authorizes discharges of non-stormwater flows to surface waters and ground waters of the state from MS4s owned or operated by each Permittee covered



under this permit, in the geographic area covered pursuant to S1.A, only under one or more of the following conditions:

1. The discharge is authorized by a separate National Pollutant Discharge Elimination System (NPDES) or State Waste Discharge permit.
2. The discharge is from emergency firefighting activities.
3. The discharge is from another illicit or non-stormwater discharge that is managed by the Permittee as provided in Special Condition S5.C.8., S6.D.3, or S6.E.3.

These discharges are also subject to the limitations in S2.A.1 and S2.A.2 above.

- C. This permit does not relieve entities that cause illicit discharges, including spills of oil or hazardous substances, from responsibilities and liabilities under state and federal laws and regulations pertaining to those discharges.
- D. Discharges from MS4s constructed after the effective date of this permit shall receive all applicable state and local permits and use authorizations, including compliance with chapter 43.21C RCW (the State Environmental Policy Act).
- E. This permit does not authorize discharges of stormwater to waters within Indian Country or to waters subject to water quality standards of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation, except where authority has been specifically delegated to Ecology by the U.S. Environmental Protection Agency. The exclusion of such discharges from this permit does not waive any rights the State may have with respect to the regulation of the discharges.

### **S3. RESPONSIBILITIES OF PERMITTEES**

- A. Each Permittee, Co-Permittee and Secondary Permittee is responsible for compliance with the terms of this Permit for the MS4s that they own or operate.
  1. Each Permittee, as listed in S1.B, is required to comply with all conditions of this permit, except for S6. Stormwater Management Program for Secondary Permittees.
  2. The Port of Tacoma and the Port of Seattle, are required to comply with all conditions of this permit except for S5. Stormwater Management Program and S6.D. Stormwater Management Program for Secondary Permittees.
  3. All Secondary Permittees, except for the Port of Tacoma and the Port of Seattle, are required to comply with all conditions of this permit except for S5. Stormwater Management Program, S6.E. Stormwater Management Program for the Port of Seattle and Port of Tacoma, and S8. Monitoring and Assessment conditions B, C, and D.

- B. Permittees may rely on another entity to satisfy one or more of the requirements of this permit. Permittees that are relying on another entity to satisfy one or more of their permit obligations remain responsible for permit compliance if the other entity fails to implement the permit conditions. Where permit responsibilities are shared they shall be documented as follows:
1. Permittees and Co-Permittees that are continuing coverage under this permit shall submit a statement that describes the permit requirements that will be implemented by other entities. The statement must be signed by all participating entities. There is no deadline for submitting such a statement, provided that this does not alter implementation deadlines. Permittees and Co-Permittees may amend their statement during the term of the permit to establish, terminate, or amend their shared responsibilities statement, and submit the amended statements to Ecology.
  2. Secondary Permittees shall submit an NOI that describes which requirements they will implement and identify the entities that will implement the other permit requirements in the area served by the Secondary Permittee's MS4. A statement confirming the shared responsibilities, signed by all participating entities, shall accompany the NOI. Secondary Permittees may amend their NOI, during the term of the permit, to establish, terminate, or amend shared responsibility arrangements, provided this does not alter implementation deadlines.
- C. Unless otherwise noted, all appendices to this permit are incorporated by this reference as if set forth fully within this permit.

#### **S4. COMPLIANCE WITH STANDARDS**

- A. In accordance with RCW 90.48.520, the discharge of toxicants to waters of the State of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria is prohibited. The required response to such discharges is defined in section S4.F, below.
- B. This permit does not authorize a discharge which would be a violation of Washington State Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Quality Standards (chapter 173-200 WAC), Sediment Management Standards (chapter 173-204 WAC), or human health-based criteria in the national Toxics Rule

(Federal Register, Vol. 57, NO. 246, Dec. 22, 1992, pages 60848-60923). The required response to such discharges is defined in section S4.F, below.

- C. The Permittee shall reduce the discharge of pollutants to the maximum extent practicable (MEP).
- D. The Permittee shall use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the State of Washington.
- E. In order to meet the goals of the Clean Water Act, and comply with S4.A, S4.B, S4.C, and S4.D, each Permittee shall comply with all of the applicable requirements of this permit as defined in S3. Responsibilities of Permittees.
- F. A Permittee remains in compliance with S4 despite any discharges prohibited by S4.A or S4.B, when the Permittee undertakes the following response toward long-term water quality improvement:
  - 1. A Permittee shall notify Ecology in writing within 30 days of becoming aware, based on credible site-specific information that a discharge from the MS4 owned or operated by the Permittee is causing or contributing to a known or likely violation of Water Quality Standards in the receiving water. Written notification provided under this subsection shall, at a minimum, identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water, and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.
  - 2. In the event that Ecology determines, based on a notification provided under S4.F.1, or through any other means, that a discharge from a MS4 owned or operated by the Permittee is causing or contributing to a violation of Water Quality Standards in a receiving water, Ecology will notify the Permittee in writing that an adaptive management response outlined in S4.F.3 below is required unless:
    - a. Ecology also determines that the violation of Water Quality Standards is already being addressed by a Total Maximum Daily Load (TMDL) or other enforceable water quality cleanup plan; or
    - b. Ecology concludes the MS4 contribution to the violation will be eliminated through implementation of other permit requirements.
  - 3. Adaptive Management Response
    - a. Within 60 days of receiving a notification under S4.F.2, or by an alternative date established by Ecology, the Permittee shall review its Stormwater Management Program and submit a report to Ecology. The report shall include:

- i. A description of the operational and/or structural Best Management Practices (BMPs) that are currently being implemented to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards, including a qualitative assessment of the effectiveness of each BMP.
  - ii. A description of potential additional operational and/or structural BMPs that will or may be implemented in order to apply AKART on a site-specific basis to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards.
  - iii. A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.
  - iv. A schedule for implementing the additional BMPs including, as appropriate: funding, training, purchasing, construction, monitoring, and other assessment and evaluation components of implementation.
- b. Ecology will, in writing, acknowledge receipt of the report within a reasonable time and notify the Permittee when it expects to complete its review of the report. Ecology will either approve the additional BMPs and implementation schedule or require the Permittee to modify the report as needed to meet AKART on a site-specific basis. If modifications are required, Ecology will specify a reasonable time frame in which the Permittee shall submit and Ecology will review the revised report.
  - c. The Permittee shall implement the additional BMPs, pursuant to the schedule approved by Ecology, beginning immediately upon receipt of written notification of approval; or, as specified in Appendix 13.
  - d. The Permittee shall include with each subsequent annual report a summary of the status of implementation, and the results of any monitoring, assessment or evaluation efforts conducted during the reporting period. If, based on the information provided under this subsection, Ecology determines that modification of the BMPs or implementation schedule is necessary to meet AKART on a site-specific basis, the Permittee shall make such modifications as Ecology directs. In the event there are ongoing violations of water quality standards despite the implementation of the BMP approach of this section, the Permittee may be subject to compliance schedules to eliminate the violation under WAC 173-201A-510(4) and WAC 173-226-180 or other enforcement orders as Ecology deems appropriate during the term of this permit.
  - e. A TMDL or other enforceable water quality cleanup plan that has been approved and is being implemented to address the MS4's contribution to the Water Quality Standards violation supersedes and terminates the S4.F.3 implementation plan.

- f. Provided the Permittee is implementing the approved adaptive management response under this section, the Permittee remains in compliance with Condition S4., despite any on-going violations of Water Quality Standards identified under S4.A or B above.
  - g. The adaptive management process provided under Section S.4.F is not intended to create a shield for the Permittee from any liability it may face under 42 U.S.C. 9601 *et seq.* or RCW 70.105D.
- G. Ecology may modify or revoke and reissue this General Permit in accordance with G14 General Permit Modification and Revocation if Ecology becomes aware of additional control measures, management practices or other actions beyond what is required in this permit, that are necessary to:
  - 1. Reduce the discharge of pollutants to the MEP;
  - 2. Comply with the state AKART requirements; or
  - 3. Control the discharge of toxicants to waters of the State of Washington.

## **S5. STORMWATER MANAGEMENT PROGRAM**

- A. Each Permittee listed in S1.B shall implement a Stormwater Management Program (SWMP) during the term of this permit. A SWMP is a set of actions and activities comprising the components listed in S5, and additional actions necessary, to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements, and S8 Monitoring and Assessment.
  - 1. Each Permittee shall prepare written documentation of their SWMP, called the SWMP Plan. The SWMP Plan shall be organized according to the program components in S5.C, or a format approved by Ecology, and shall be updated at least annually for submittal with the Permittee's annual report to Ecology (S9 Reporting Requirements). The SWMP Plan shall be written to inform the public of the planned SWMP activities for the upcoming calendar year, and shall include a description of:
    - a. Planned activities for each of the program components included in S5.C.
    - b. Any additional planned actions to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements.
    - c. Any additional planned actions to meet the requirements of S8 Monitoring and Assessment.
  - 2. Each Permittee shall track the cost or estimated cost of development and implementation of each component of the SWMP. This information shall be provided to Ecology upon request.

3. Each Permittee shall track the number of inspections, official enforcement actions and types of public education activities as required by the respective program component. This information shall be included in the annual report.
- B. The SWMP shall be designed to reduce the discharge of pollutants from MS4s to the MEP, meet state AKART requirements, and protect water quality.

Permittees are to continue implementation of existing stormwater management programs until they begin implementation of the updated stormwater management program in accordance with the terms of this permit, including implementation schedules.

- C. The SWMP shall include the components listed below. The requirements of the SWMP shall apply to MS4s, and areas served by MS4s owned or operated by the Permittee. To the extent allowable under state and federal law, all SWMP components are mandatory.

1. Legal Authority

- a. Each Permittee shall be able to demonstrate that they can operate pursuant to legal authority which authorizes or enables the Permittee to control discharges to and from MS4s owned or operated by the Permittee.
- b. This legal authority, which may be a combination of statute, ordinance, permit, contracts, orders, interagency agreements, or similar means, shall authorize or enable the Permittee, at a minimum, to:
  - i. Control through ordinance, order, or similar means, the contribution of pollutants to MS4s owned or operated by the Permittee from stormwater discharges associated with industrial activity, and control the quality of stormwater discharged from sites of industrial activity;
  - ii. Prohibit through ordinance, order, or similar means, illicit discharges to the MS4 owned or operated by the Permittee;
  - iii. Control through ordinance, order, or similar means, the discharge of spills and disposal of materials other than stormwater into the MS4s owned or operated by the Permittee;
  - iv. Control through interagency agreements among co-applicants, the contribution of pollutants from one portion of the MS4 to another portion of the MS4;
  - v. Require compliance with conditions in ordinances, permits, contracts, or orders; and,
  - vi. Within the limitations of state law, carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and non-



compliance with permit conditions, including the prohibition on illicit discharges to the MS4 and compliance with local ordinances.

2. Municipal Separate Storm Sewer System Mapping and Documentation

The SWMP shall include an ongoing program for mapping and documenting the MS4.

Minimum performance measures:

- a. Ongoing Mapping: Each Permittee shall maintain mapping data for the features listed below.
  - i. Known MS4 outfalls and discharge points.
  - ii. Receiving waters, other than ground water.
  - iii. Stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee.
  - iv. Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface water.
  - v. Tributary conveyances to all known outfalls and discharge points with a 24-inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems. For Counties, this requirement applies to urban/higher density rural sub-basins. For Cities, this requirement applies throughout the City. The following attributes shall be mapped:
    - (1) Tributary conveyance type, material, and size where known
    - (2) Associated drainage areas
    - (3) Land uses
  - vi. Connections between the MS4 owned or operated by the Permittee and other municipalities or other public entities.
  - vii. All connections to the MS4 authorized or allowed by the Permittee after February 16, 2007.
  - viii. Existing, known connections over 8 inches in nominal diameter to tributary conveyances mapped in accordance with S5.C.2.a.v. For Counties, this requirement applies to the area of the county within urban/higher density rural sub-basins mapped under the previous permit. For Cities, this requirement applies throughout the City.
- b. New Mapping: Each Permittee shall complete the following mapping no later than December 31, 2017.

- i. Counties shall map tributary conveyances, as described in S5.C.2.a.v, for any urban/higher density rural sub-basins not mapped under the previous permit.
  - ii. Counties shall map existing, known connections greater than 8 inches in nominal diameter to tributary conveyances mapped in accordance with S5.C.2.b.i.
  - iii. Each Permittee shall map existing, known connections equal to 8 inches in nominal diameter to tributary conveyances mapped in accordance with S.5.C.2.
  - iv. Each Permittee shall map connections between stormwater treatment and flow control BMPs/facilities and tributary conveyances mapped in accordance with S5.C.2. The Permittee shall map all associated emergency overflows.
- c. To the extent consistent with national security laws and directives, each Permittee shall make available to Ecology, upon request, available maps depicting the information required in S5.C.2.a and b, above. The required format for mapping is electronic with fully described mapping standards. An example description is available on Ecology's website.
  - d. Upon request, and to the extent appropriate, Permittees shall provide mapping information to federally recognized Indian Tribes, municipalities, and other Permittees. This permit does not preclude Permittees from recovering reasonable costs associated with fulfilling mapping information requests by federally recognized Indian Tribes, municipalities, and other Permittees.
3. Coordination

The SWMP shall include coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance with the terms of this permit.

The SWMP shall also include coordination mechanisms among entities covered under a municipal stormwater NPDES permit to encourage coordinated stormwater-related policies, programs and projects within a watershed.

Minimum performance measures:

- a. Implement intra-governmental (internal) coordination agreement(s) or Executive Directive(s) to facilitate compliance with the terms of this permit. Permittees shall include a written description of internal coordination mechanisms in the Annual Report, due no later than March 31, 2015.
- b. Implement; and within 2 years following the addition of a new Secondary Permittee, establish and implement:

- i. Coordination mechanisms clarifying roles and responsibilities for the control of pollutants between physically interconnected MS4s of the Permittee and any other Permittee covered by a municipal stormwater permit.
- ii. Coordinating stormwater management activities for shared waterbodies, among Permittees and Secondary Permittees, as necessary to avoid conflicting plans, policies, and regulations.

Permittees shall document their efforts to establish the required coordination mechanisms. Failure to effectively coordinate is not a permit violation provided other entities, whose actions the Permittee has no or limited control over, refuse to cooperate.

#### 4. Public Involvement and Participation

Permittees shall provide ongoing opportunities for public involvement and participation in the Permittee's SWMP and implementation priorities.

Minimum performance measures:

- a. Permittees shall create opportunities for the public to participate in the decision-making processes involving the development, implementation and update of the Permittee's SWMP.
  - b. Each Permittee shall post on their website their SWMP Plan, and the annual report required under S9.A no later than May 31 each year. All other submittals shall be available to the public upon request.
- #### 5. Controlling Runoff from New Development, Redevelopment, and Construction Sites

The SWMP shall include a program to prevent and control the impacts of runoff from new development, redevelopment, and construction activities. Refer to Appendix 10 for a list of approved manuals and ordinances. The program shall apply to private and public development, including roads.

Minimum performance measures:

- a. Site and subdivision scale requirements:
  - i. The Minimum Requirements, thresholds, and definitions in Appendix 1, or Minimum Requirements, thresholds, and definitions determined by Ecology to be equivalent to Appendix 1, for new development, redevelopment, and construction sites shall be included in ordinances or other enforceable documents adopted by the local government. Adjustment and variance criteria equivalent to those in Appendix I shall

be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of Ecology approved basin plans or other similar water quality and quantity planning efforts. Such local requirements and thresholds shall provide equal or similar protection of receiving waters and equal or similar levels of pollutant control as compared to Appendix 1.

- ii. The local requirements shall include the following requirements, limitations, and criteria that, when used to implement the minimum requirements in Appendix 1, will protect water quality, reduce the discharge of pollutants to the MEP, and satisfy the State requirement under chapter 90.48 RCW to apply AKART prior to discharge:

- (1) Site planning requirements
- (2) BMP selection criteria
- (3) BMP design criteria
- (4) BMP infeasibility criteria
- (5) LID competing needs criteria
- (6) BMP limitations

Permittees shall document how the criteria and requirements will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy the state AKART requirements.

Permittees who choose to use the requirements, limitations, and criteria in the Stormwater Management Manual for Western Washington (SWMMWW), or an equivalent manual approved by Ecology, may cite this choice as their sole documentation to meet this requirement.

- iii. No later than June 30, 2015, each Permittee shall adopt and make effective a local program that meets the requirements in S5.C.5.a.i through ii, above. The local program adopted to meet the requirements of S5.C.5.a.i through ii shall apply to all applications<sup>1</sup> submitted after June 30, 2015 and shall apply to applications submitted no later than June 30, 2015, which have not started construction<sup>2</sup> by June 30, 2020.

Ecology review and approval of the local manual and ordinances is required. Manuals and ordinances approved under this section are listed

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<sup>1</sup> In this context, "application" means, at a minimum, a complete project description, site plan, and, if applicable, SEPA checklist. Permittees may establish additional elements of a complete application.

<sup>2</sup> In this context, "started construction" means, at a minimum, the site work associated with and directly related to the approved project has begun. For example: grading the project site to final grade or utility installation. Simply clearing the project site does not constitute the start of construction. Permittees may establish additional requirements related to the start of construction.

in Appendix 10, Part 2. Permittees shall provide detailed, written justification of any of the requirements which differ from those contained in Appendix 1 of this permit.

The Permittee shall submit draft enforceable requirements, technical standards and manual to Ecology no later than July 1, 2014. Ecology will review and provide written response to the Permittee. If Ecology takes longer than 90 days to provide a written response, the required deadline for adoption and effective date will be automatically extended by the number of calendar days that Ecology exceeds a 90 day period for written response.

In the case of circumstances beyond the Permittee's control, such as litigation or administrative appeals that may result in noncompliance with the requirements of this section, the Permittee shall promptly notify Ecology and submit a written request for an extension.

- iv. The program shall include the legal authority to inspect private stormwater facilities and enforce maintenance standards for all new development and redevelopment approved under the provisions of this section.
- v. The program shall include a process of permits, site plan review, inspections, and enforcement capability to meet the following standards for both private and public projects, using qualified personnel:
  - (1) Review all stormwater site plans submitted to the Permittee for proposed development involving land disturbing activity that meet the thresholds in S5.C.5.a.i, above.
  - (2) Inspect prior to clearing and construction, all permitted development sites that meet the thresholds in S5.C.5.a.i, and that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7. As an alternative to evaluating each site according to Appendix 7, Permittees may choose to inspect all construction sites that meet the minimum thresholds in S5.C.5.a.i.
  - (3) Inspect all permitted development sites involving land disturbing activity that meet the thresholds in S5.C.5.a.i, above, during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection.
  - (4) Inspect all permitted development sites that meet the thresholds in S5.C.5.a.i, upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. Verify that a maintenance plan is completed and responsibility for maintenance is assigned for stormwater

treatment and flow control BMPs/facilities. Enforce as necessary based on the inspection.

- (5) Compliance with the inspection requirements in (2), (3) and (4) above shall be determined by the presence of an established inspection program designed to inspect all sites involving land disturbing activity that meet the thresholds in S5.C.5.a.i. Compliance during this permit term shall be determined by achieving at least 80% of scheduled inspections. The inspections may be combined with other inspections provided they are performed using qualified personnel.
  - (6) The program shall include a procedure for keeping records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records. Records of maintenance inspections and maintenance activities shall be maintained.
  - (7) The program shall include an enforcement strategy to respond to issues of non-compliance.
- vi. The Permittee shall make available, as applicable, the "Notice of Intent for Construction Activity" and copies of the "Notice of Intent for Industrial Activity" to representatives of proposed new development and redevelopment. Permittees will continue to enforce local ordinances controlling runoff from sites that are covered by other stormwater permits issued by Ecology.
  - vii. Each permittee shall ensure that all staff whose primary job duties are implementing the program to Control Stormwater Runoff from New Development, Redevelopment, and Construction Sites, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. As determined necessary by the Permittee, follow-up training shall be provided to address changes in procedures, techniques or staffing. Permittees shall document and maintain records of the training provided and the staff trained.
- b. Low impact development code-related requirements:
    - i. No later than June 30, 2015, or by an alternative date if established in accordance with S5.C.5.a.iii, Permittees shall review, revise, and make effective their local development-related codes, rules, standards, or other enforceable documents to incorporate and require Low Impact Development (LID) Principles and LID Best Management Practices (BMPs).

The intent of the revisions shall be to make LID the preferred and commonly-used approach to site development. The revisions shall be designed to minimize impervious surfaces, native vegetation loss, and



stormwater runoff in all types of development situations. Permittees shall conduct a similar review and revision process, and consider the range of issues, outlined in the following document: Integrating LID into Local Codes: A Guidebook for Local Governments (Puget Sound Partnership, 2012).

- ii. Each Permittee shall submit a summary of the results of the review and revision process in S5.C.5.b.i with the Annual Report due on March 31, 2016. This summary shall include, at a minimum, a list of the participants (job title, brief job description, department represented), the codes, rules, standards, and other enforceable documents reviewed, and the revisions made to those documents which incorporate and require LID Principles and LID BMPs. The summary shall include existing requirements for LID Principles and LID BMPs in development-related codes. The summary of revisions shall be organized as follows:
  - (1) Measures to minimize impervious surfaces.
  - (2) Measures to minimize loss of native vegetation.
  - (3) Other measures to minimize stormwater runoff.

c. Watershed-scale stormwater planning requirements:

The objective of watershed-scale stormwater planning is to identify a stormwater management strategy or strategies that would result in hydrologic and water quality conditions that fully support “existing uses,” and “designated uses,” as those terms are defined in WAC 173-201A-020, throughout the stream system.

- i. No later than October 31, 2013, each County Permittee listed below shall select one watershed from the following list in which to conduct watershed-scale stormwater planning:
  - Clark County: Whipple, Salmon
  - King County: Bear, May, Soos
  - Pierce County: Clover
  - Snohomish County: Swamp, North

A permittee may propose an alternative watershed that meets all of the following criteria:

- (1) Has a drainage area of at least 10 square miles.
- (2) Is partially or wholly within the County Permittee’s existing MS4 service area with discharges to the stream.
- (3) Has a stream system that has been impacted by development but retains some anadromous fish resources.

- (4) Is targeted to accept significant population growth and associated development, and is partially, if not fully, within the urban growth area established under Chapter 36.70A RCW, or a potential future expansion of the urban growth area.

Each County Permittee<sup>3</sup> will notify Ecology in writing of the selected or proposed alternative watershed no later than October 31, 2013. Any proposed alternative watershed is subject to Ecology's review and approval. The required deadlines for submission of a scope of work and a final plan will be automatically extended by the number of calendar days that Ecology exceeds a 60 day period for written response to the alternative watershed proposal.

- ii. Each County Permittee shall convene and lead a documented watershed-scale stormwater planning process as described in sections S5.C.5.c.ii through S5.C.5.c.vi below.

A City or County MS4 Permittee within a Phase I County selected basin must fully participate with the stormwater planning process as described below. Permittees may choose to participate in a coordinated Scope of Work and schedule with other Permittees within the selected watershed, or conduct their scope of work independently.

- iii. No later than August 13, 2015, each Permittee within the basin selected by King County must submit to Ecology documentation of their proposed approach to coordinate their efforts with other Permittees within the watershed, including:
  - (1) A list of the municipal stormwater permittees with whom the Permittee will undertake watershed-scale planning under a common scope of work; and description of the coordination and dispute resolution procedures agreed to by all of the Permittees operating under the common scope of work; and
  - (2) A description of planned coordination and dispute resolution procedures for providing and receiving feedback from Permittees

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<sup>3</sup> Ecology approved a selected watershed for all four County Permittees. Clark County chose the Whipple Creek watershed which was one of the options listed in the permit. King County and Pierce County chose to do planning on subsets of watersheds listed in the permit that meet the four criteria identified for alternative watersheds. King County chose a portion of the Bear Creek watershed (excluding the Cottage Lake sub-watershed, Evans Creek, and the area downstream of the confluence with Evans Creek), and Pierce County chose the Spanaway Creek/Lake sub-watershed of the Clover Creek watershed.

Snohomish County proposed a subset of an alternative watershed, Little Bear Creek. Ecology originally approved the entire Little Bear Creek watershed, which meets the four qualifying criteria, but based on the 2014 ruling by the Pollution Control Hearings Board and comments received during the permit modification process, Ecology accepts the originally proposed subset of just that part of Little Bear Creek in Snohomish County.

operating under different scopes of work within the same watershed, including procedures to:

- a) Review, provide comment, and revise methods and assumptions to meet S5.C.5.c.iv (1) through (4) below;
  - b) Review, provide comment, and revise present- and future-condition B-IBI scores, pollutant concentrations, temperature and hydrologic metrics;
  - c) Share the results of the modeling performed by the Permittee with all other Permittees in the watershed;
  - d) Adjust the Permittee's proposed changes to development-related codes, rules, standards, plans, and potential future structural stormwater control projects in response to feedback from other Permittees so that the planning objectives, as described in S5.C.5.c above, are projected to be achieved throughout the watershed.
- (3) It is not a permit violation if other entities, over whose actions the Permittee has limited or no control, refuse to participate in the coordination plan described in S5.C.5.c.iii.
- iv. No later than April 1, 2014 for Permittees in watersheds selected by Clark and Pierce counties, November 4, 2015, for Permittees in the watershed selected by King county, and March 31, 2015, for Permittees in the watershed selected by Snohomish county, the Permittee shall submit a scope of work and a schedule to Ecology for the complete watershed planning process. The scope of work and schedule are subject to Ecology's review and approval. If Ecology takes longer than 90 days to provide a written response, the required deadline for submitting a final watershed-scale stormwater plan to Ecology will be automatically extended by the number of days Ecology exceeds 90 days, but no later than July 30, 2018.

The scope of work and schedule must apply to the geographic extent of the jurisdictions of the Permittees listed under S5.C.5.c.iii (1) above and, at a minimum, describe:

- (1) An assessment of existing hydrologic, biologic, and water quality conditions within the selected watershed, and an assessment of the current status of the aquatic community. This assessment may be based on existing data where such data are available. Where such data are not available, or are not sufficient, the scope of work and schedule shall include the collection of such data.

The existing conditions assessment shall, at a minimum, include the following:

- a) Water quality conditions as established through sampling during base flows and storm flows for, at a minimum, the following chemical parameters: dissolved copper, dissolved zinc, temperature, and fecal coliform. Permittees shall identify or collect data from locations upgradient and downgradient of stream sections influenced by MS4 discharges.
  - b) Continuous flow monitoring of the stream to provide the data necessary to calibrate a continuous runoff model to the selected watershed. Permittees shall identify or collect flow monitoring data from locations upgradient and downgradient of stream sections influenced by MS4 discharges.
  - c) Macroinvertebrate data for the purpose of estimating current Benthic Index of Biotic Integrity (B-IBI) scores and comparing them with the scores predicted by the existing values of the hydrologic metrics in S5.C.5.c.iv(4).
  - d) The status of the aquatic community, including the presence and distribution of salmonid uses, shall be documented using data from existing sources.
- (2) Efforts to compile and/or generate maps of the selected watershed to identify the existing distribution and totals of general soil types, vegetative land cover, impervious land covers, MS4s and non-regulated public stormwater systems (if applicable). Maps must be sufficient to allow construction of a rainfall/runoff model representation of the watershed. Maps must also identify areas within the watershed appropriate for special attention in regard to hydrologic and water quality impacts. For example: headwater wetlands and critical aquifer recharge areas.
  - (3) How the Permittee will use the existing conditions assessment in S5.C.5.c.iv(1) and the maps described in S5.C.5.c.iv(2), to calibrate a continuous runoff model to reflect the existing hydrologic, water quality, and biologic (as represented by B-IBI score) conditions.
  - (4) How the Permittee will use the model calibrated in S5.C.5.c.iv(3), to estimate hydrologic changes from the historic condition; and predict the future hydrologic, biologic, and water quality conditions at full build-out under existing or proposed comprehensive land use management plan(s) for the watershed. Future biologic conditions shall be estimated by using a correlation of hydrologic metrics with B-IBI scores for *Puget Sound Lowland*

*Streams*<sup>4</sup>, or other similar correlation if approved by Ecology. Future water quality conditions shall be described through estimation of concentrations of, at a minimum, dissolved copper, dissolved zinc, temperature, and fecal coliform.

- (5) How, if the estimation in S5.C.5.c.ii(4) predicts water quality standards will not be met, the Permittee will use the calibrated watershed model to evaluate stormwater management strategies to meet the standards. The same hydrologic metrics and correlated B-IBI scores, and water quality parameters used in S5.C.5.c.ii(4) shall be used to evaluate the effectiveness of strategies.
    - a) Stormwater management strategies to be evaluated for all jurisdictions in the watershed must include:
      - Changes to development-related codes, rules, standards, and plans.
      - Potential future structural stormwater control projects consistent with S5.C.6.a.
    - b) Stormwater management strategies evaluated may also include:
      - Basin-specific stormwater control requirements for new development and redevelopment as allowed by Section 7 of Appendix 1.
      - Strategies to encourage redevelopment and infill, and an assessment of options for efficient, effective runoff controls for redevelopment projects, such as regional facilities, in lieu of individual site requirements.
  - (6) How the permittee will create an implementation plan and schedule that includes: potential future actions to implement the identified stormwater management strategies, responsible parties, estimated costs, and potential funding mechanisms.
  - (7) A public review and comment process, at a minimum, focused on the draft watershed-scale stormwater plan. The public review must allow for public comment from all governmental entities with jurisdiction within the watershed.
- v. The watershed-scale stormwater planning process, as documented in the scope of work and schedule, may include an evaluation of strategies to preserve or improve other factors that influence maintenance of the existing and designated uses of the stream. Examples include: channel restoration, in-stream culvert replacement, quality of the riparian zone,

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<sup>4</sup> DeGasperi, C.L., Berge, H. B., Whiting, K. R., Burkey, J. J., Cassin, J. L. and Fuerstenberg, R. R. (2009), Linking Hydrologic Alteration to Biological Impairment in Urbanizing Streams of the Puget Lowland, Washington, USA. JAWRA Journal of the American Water Resources Association, 45: 512-533. Doi: 10.1111/j.1752-1688.2009.00306.x

gravel disturbance regime, and presence and distribution of large woody debris.

- vi. Each Permittee (or group of Permittees operating under a single scope of work, as described above) must submit a final watershed-scale stormwater plan to Ecology no later than September 6, 2017, for the Clark, Pierce, and Snohomish county efforts, and no later than April 4, 2018, for the King county effort. The plan must summarize results of the modeling and planning process, describe results of the evaluation of strategies under S5.C.5.c.iv(5), and include the implementation plan and schedule developed pursuant to S5.C.5.c.iv(6).

#### 6. Structural Stormwater Controls

Each Permittee shall implement a structural stormwater controls program to prevent or reduce impacts to waters of the state caused by discharges from the MS4. Impacts that shall be addressed include disturbances to watershed hydrology and stormwater pollutant discharges.

The program shall consider impacts caused by stormwater discharges from areas of existing development, including runoff from highways, streets and roads owned or operated by the Permittee, and areas of new development, where impacts are anticipated as development occurs.

Minimum performance measures:

- a. The program shall address impacts that are not adequately controlled by the other required actions of the SWMP.
  - i. The program shall consider the following projects:
    - (1) New flow control facilities, including LID BMPs.
    - (2) New treatment (or treatment and flow control) facilities, including LID BMPs.
    - (3) Retrofit of existing treatment and/or flow control facilities.
    - (4) Property acquisition for water quality and/or flow control benefits (not associated with future facilities).
    - (5) Maintenance with capital construction costs  $\geq$  \$25,000.
  - ii. Permittees should consider other projects to address impacts, such as:
    - (1) Riparian habitat acquisition.
    - (2) Restoration of forest cover and/ or riparian buffers.
    - (3) Floodplain reconnection projects on water bodies that are not flow control exempt per Appendix 1.

- (4) Capital projects related to the MS4 which implement an Ecology-approved basin or watershed plan.
    - (5) Other actions to address stormwater runoff into or from the MS4 not otherwise required in S5.C.
  - iii. Permittees may not use in-stream culvert replacement or channel restoration projects for compliance with this requirement.
  - iv. The Structural Stormwater Control program may also include a program designed to implement small scale projects that are not planned in advance.
- b. Each Permittee's SWMP Plan shall describe the Structural Stormwater Control Program including the following:
  - i. The Structural Stormwater Control Program goals.
  - ii. The planning process used to develop the Structural Stormwater Control Program, including:
    - (1) The geographic scale of the planning process.
    - (2) Issues and regulations addressed.
    - (3) Steps in the planning process.
    - (4) Types of characterization information considered.
    - (5) Amount budgeted for implementation.
    - (6) The public involvement process.
    - (7) A description of the prioritization process, procedures and criteria used to select the Structural Stormwater Control projects.
- c. No later than March 31, 2014 each Permittee shall provide a list of planned, individual projects scheduled for implementation during this permit term. This list must include at a minimum the information and formatting specified in Appendix II. Each Permittee's annual report shall provide an update of this list.

#### 7. Source Control Program for Existing Development

- a. The Permittee shall implement a program to reduce pollutants in runoff from areas that discharge to MS4s owned or operated by the Permittee. The program shall include the following:
  - i. Application of operational and structural source control BMPs, and, if necessary, treatment BMPs/facilities to pollution generating sources associated with existing land uses and activities.

- ii. Inspections of pollutant generating sources at commercial and industrial properties to enforce implementation of required BMPs to control pollution discharging into MS4s owned or operated by the Permittee.
- iii. Application and enforcement of local ordinances at sites, identified pursuant to S5.C.7.b.ii, including sites with discharges authorized by a separate NPDES permit. Permittees that are in compliance with the terms of this permit will not be held liable by Ecology for water quality standard violations or receiving water impacts caused by industries and other Permittees covered, or which should be covered under an NPDES permit issued by Ecology.
- iv. Practices to reduce polluted runoff from the application of pesticides, herbicides, and fertilizer discharging into MS4s owned or operated by the Permittee.

b. Minimum performance measures:

- i. Permittees shall enforce ordinance(s), or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities.

Permittees shall update and make effective the ordinance(s), or other enforceable documents, as necessary to meet the requirements of this section no later than February 2, 2018.

The requirements of this subsection are met by using the source control BMPs in Volume IV of the Stormwater Management Manual for Western Washington, or a functionally equivalent manual approved by Ecology.

Operational source control BMPs shall be required for all pollutant generating sources. Structural source control BMPs shall be required for pollutant generating sources if operational source control BMPs do not prevent illicit discharges or violations of surface water, ground water, or sediment management standards because of inadequate stormwater controls. Implementation of source control requirements may be done through education and technical assistance programs, provided that formal enforcement authority is available to the Permittee and is used as determined necessary by the Permittee, in accordance with S5.C.7.b.iv, below.

- ii. Permittees shall implement a program to identify commercial and industrial properties which have the potential to generate pollutants to the Permittee's MS4. The program shall include a source control inventory which lists businesses and/or properties identified based on the presence of activities that are pollutant generating (refer to Appendix 8). The source control inventory shall also include other pollutant generating



sources, such as mobile or home-based businesses and multifamily properties, which are identified based on complaint response. The Permittee shall update the inventory at least once every 5 years.

- iii. Permittees shall implement an inspection program for sites identified pursuant to S5.C.7.b.ii above.
  - (1) All identified sites with a business address shall be provided, by mail, telephone, electronic communications, or in person, information about activities that may generate pollutants and the source control requirements applicable to those activities. This information may be provided all at one time or spread out over the permit term to allow for some tailoring and distribution of the information during site inspections.
  - (2) The Permittee shall annually complete the number of inspections equal to 20% of the businesses and/or properties listed in their source control inventory to assure BMP effectiveness and compliance with source control requirements. The Permittee may count follow up compliance inspections at the same site toward the 20% inspection rate. The Permittee may select which sites to inspect each year and is not required to inspect 100% of sites over a 5-year period. Sites may be prioritized for inspection based on their land use category, potential for pollution generation, proximity to receiving waters, or to address an identified pollution problem within a specific geographic area or sub-basin.
  - (3) Each Permittee shall inspect 100% of sites identified through legitimate complaints.
- iv. Each Permittee shall implement a progressive enforcement policy to require sites to come into compliance with stormwater requirements within a reasonable time period as specified below:
  - (1) If the Permittee determines, through inspections or otherwise, that a site has failed to adequately implement required BMPs, the Permittee shall take appropriate follow-up action(s) which may include: phone calls, reminder letters or follow-up inspections.
  - (2) When a Permittee determines that a facility has failed to adequately implement BMPs after a follow-up inspection, the Permittee shall take enforcement action as established through authority in its municipal code and ordinances, or through the judicial system.
  - (3) Each Permittee shall maintain records, including documentation of each site visit, inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating an effort to bring facilities into compliance. Each Permittee shall also

maintain records of sites that are not inspected because the property owner denies entry.

- (4) A Permittee may refer non-emergency violations of local ordinances to Ecology, provided, the Permittee also makes a documented effort of progressive enforcement. At a minimum, a Permittee's enforcement effort shall include documentation of inspections and warning letters or notices of violation.
  - v. Permittees shall train staff who are responsible for implementing the source control program to conduct these activities. The ongoing training program shall cover the legal authority for source control, source control BMPs and their proper application, inspection protocols, lessons learned, typical cases, and enforcement procedures. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staff. Permittees shall document and maintain records of the training provided and the staff trained.
8. Illicit Connections and Illicit Discharges Detection and Elimination

The SWMP shall include an ongoing program designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the MS4.

Minimum performance measures:

- a. The program shall include procedures for reporting and correcting or removing illicit connections, spills and other illicit discharges when they are suspected or identified. The program shall also include procedures for addressing pollutants entering the MS4 from an interconnected, adjoining MS4.

Illicit connections and illicit discharges shall be identified through field screening, inspections, complaints/reports, construction inspections, maintenance inspections, source control inspections, and/or monitoring information, as appropriate.

- b. No later than February 2, 2018, each Permittee shall evaluate, and if necessary update, existing ordinances or other regulatory mechanisms to effectively prohibit non-stormwater, illicit discharges, including spills, into the Permittee's MS4.
  - i. Allowable Discharges: The ordinance or other regulatory mechanism does not need to prohibit the following categories of non-stormwater discharges:
    - (1) Diverted stream flows
    - (2) Rising ground waters

- (3) Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(b)(20))
  - (4) Uncontaminated pumped ground water
  - (5) Foundation drains
  - (6) Air conditioning condensation
  - (7) Irrigation water from agricultural sources that is commingled with urban stormwater
  - (8) Springs
  - (9) Uncontaminated water from crawl space pumps
  - (10) Footing drains
  - (11) Flows from riparian habitats and wetlands
  - (12) Non-stormwater discharges authorized by another NPDES or State Waste Discharge permit
  - (13) Discharges from emergency firefighting activities in accordance with S2 Authorized Discharges
- ii. Conditionally Allowable Discharges: The ordinance or other regulatory mechanism, may allow the following categories of non-stormwater discharges only if the stated conditions are met:
- (1) Discharges from potable water sources including, but not limited to, water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be de-chlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4.
  - (2) Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities (see S5.C.10) and water conservation efforts.
  - (3) Dechlorinated swimming pool, spa, and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenated if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.
  - (4) Street and sidewalk wash water, water used to control dust, and routine external building washdown that does not use detergents. The Permittee shall reduce these discharges through, at a

minimum, public education activities (see S5.C.10) and/or water conservation efforts. To avoid washing pollutants into the MS4, Permittees shall minimize the amount of street wash and dust control water used.

- (5) Other non-stormwater discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee which addresses control of such discharges.
- iii. The Permittee shall further address any category of discharges in S5.C.8.b.i or ii above if the discharges are identified as significant sources of pollutants to waters of the State.
- c. Each Permittee shall implement an ongoing program designed to detect and identify non-stormwater discharges and illicit connections into the Permittee's MS4. The program shall include the following components:
  - i. Procedures for conducting investigations of the Permittees MS4, including field screening and methods for identifying potential sources. These procedures may also include source control inspections.

The permittee shall implement a field screening methodology appropriate to the characteristics of the MS4 and water quality concerns. Screening for illicit connections may be conducted using the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004; or another method of comparable or improved effectiveness. The Permittee shall document the field screening methodology in the relevant Annual Report.

- (1) Each Permittee shall implement an ongoing field screening program of, on average, 12% of the Permittee's known conveyance systems each calendar year.
- (2) Each City shall field screen all the conveyance systems within the Permittee's incorporated area at least once between February 2007 and July 31, 2018.
- (3) Each County shall field screen all the conveyance systems within the Permittee's urban/higher density rural sub-basins at least once between February 2007 and July 31, 2018.
- ii. A publicly-listed and publicized hotline or other telephone number for public reporting of spills and other illicit discharges.
- iii. An ongoing training program for all municipal field staff, who, as part of their normal job responsibilities might come into contact with or otherwise observe an illicit discharge or illicit connection to the MS4, on the identification of an illicit discharge and/or connection, and on the

proper procedures for reporting and responding to the illicit discharge and/or connection. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of the trainings provided and the staff trained.

- d. Each Permittee shall implement an ongoing program designed to address illicit discharges, including spills and illicit connections, into the Permittee's MS4. The program shall include:
  - i. Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the Permittee. Procedures shall address the evaluation of whether the discharge must be immediately contained and steps to be taken for containment of the discharge.
  - ii. Procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures.
  - iii. Procedures for eliminating the discharge; including notification of appropriate authorities; notification of the property owner; technical assistance; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated.
  - iv. Compliance with the provisions in S5.C.8.d.i, ii, and iii, above, shall be achieved by meeting the following timelines:
    - (1) Immediately respond to all illicit discharges, including spills, which are determined to constitute a threat to human health, welfare, or the environment consistent with General Condition G3.
    - (2) Investigate (or refer to the appropriate agency with authority to act) within 7 days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge.
    - (3) Initiate an investigation within 21 days of any report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection.
    - (4) Upon confirmation of an illicit connection, use enforcement authority in a documented effort to eliminate the illicit connection within 6 months. All known illicit connections to the MS4 shall be eliminated.
- e. Permittees shall train staff who are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges,

including spills and illicit connections, to conduct these activities. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staff. Permittees shall document and maintain records of the training provided and the staff trained.

- f. Each Permittee shall either participate in a regional emergency response program, or develop and implement procedures to investigate and respond to spills and improper disposal into the MS4 owned or operated by the Permittee.
- g. Recordkeeping: Each Permittee shall track and maintain records of the activities conducted to meet the requirements of this section.

#### 9. Operation and Maintenance Program

Each Permittee shall implement a program to regulate maintenance activities and to conduct maintenance activities by the Permittee to prevent or reduce stormwater impacts.

Minimum performance measures:

- a. Maintenance Standards. Each Permittee shall implement maintenance standards that are as protective, or more protective, of facility function than those specified in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington. For facilities which do not have maintenance standards, the Permittee shall develop a maintenance standard. No later than June 30, 2015 each Permittee shall update their maintenance standards as necessary to meet the requirements in this section.
  - i. The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections. Exceeding the maintenance standard between inspections and/or maintenance is not a permit violation.
  - ii. Unless there are circumstances beyond the Permittee's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:
    - (1) Within 1 year for typical maintenance of facilities, except catch basins.
    - (2) Within 6 months for catch basins.
    - (3) Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the Permittee's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency

work. For each exceedance of the required timeframe, the Permittee shall document the circumstances and how they were beyond the Permittee's control.

- b. Maintenance of stormwater facilities regulated by the Permittee:
- i. Each Permittee shall evaluate and, if necessary, update existing ordinances or other enforceable documents requiring maintenance of all permanent stormwater treatment and flow control BMPs/facilities regulated by the Permittee (including catch basins that are part of the facilities regulated by the Permittee), in accordance with maintenance standards established under S5.C.9.a, above.
  - ii. Each Permittee shall implement an on-going inspection program to annually inspect all stormwater treatment and flow control BMPs/facilities regulated by the Permittee to enforce compliance with adopted maintenance standards as needed based on inspection. The inspection program is limited to facilities to which the Permittee can legally gain access, provided the Permittee shall seek access to all stormwater treatment and flow control BMPs/facilities regulated by the permittee.

Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 Certification and Signature.

- iii. Each Permittee shall manage maintenance activities to inspect all permanent stormwater treatment and flow control BMPs/facilities, and catch basins, in new residential developments every six months, until 90% of the lots are constructed (or when construction has stopped and the site is fully stabilized), to identify maintenance needs and enforce compliance with maintenance standards as needed.
- iv. Compliance with the inspection requirements of S5.C.9.b.ii and iii, above, shall be determined by the presence of an established inspection program designed to inspect all sites, and achieving inspection of 80% of all sites.
- v. The Permittee shall require cleaning of catch basins regulated by the Permittee if they are found to be out of compliance with established maintenance standards in the course of inspections conducted at facilities under the requirements of S5.C.7. Source Control Program for Existing Development, and S5.C.8. Illicit Connections and Illicit Discharges Detection and Elimination, or if the catch basins are part of the

stormwater facilities inspected under the requirements of S5.C.9  
Operation and Maintenance Program.

c. Maintenance of stormwater facilities owned or operated by the Permittee

- i. Each Permittee shall implement a program to annually inspect all permanent stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee. Permittees shall implement appropriate maintenance action(s) in accordance with adopted maintenance standards.

Permittees may reduce the inspection frequency based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 Certification and Signature.

- ii. Each Permittee shall implement a program to conduct spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24 hour storm event with a 10 year or greater recurrence interval). If spot checks indicate widespread damage/maintenance needs, inspect all stormwater treatment and flow control BMPs/facilities that may be affected. Conduct repairs or take appropriate maintenance action in accordance with maintenance standards established under S5.C.9.a, above, based on the results of the inspections.
- iii. Compliance with the inspection requirements of S5.C.9.c.i, and ii above, shall be determined by the presence of an established inspection program designed to inspect all sites and achieving at least 95% of required inspections.

d. Maintenance of Catch Basins Owned or Operated by the Permittee

- i. Each Permittee shall annually inspect catch basins and inlets owned or operated by the Permittee, or implement alternatives below.

Alternatives to the standard approach of inspecting catch basins annually: Permittees may apply the following alternatives to all or portions of their system.

- (1) The annual catch basin inspection schedule may be changed as appropriate to meet the maintenance standards based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records for catch basins, the Permittee may substitute written statements to document a specific, less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance



experience and shall be certified in accordance with G19 Certification and Signature.

- (2) Annual inspections may be conducted on a “circuit basis” whereby 25% of catch basins and inlets within each circuit are inspected to identify maintenance needs. Include an inspection of the catch basin immediately upstream of any system outfall or discharge point, if applicable. Clean all catch basins within a given circuit for which the inspection indicates cleaning is needed to comply with maintenance standards established under S5.C.9.a, above.
  - (3) The Permittee may clean all pipes, ditches, catch basins, and inlets within a circuit once during the permit term. Circuits selected for this alternative must drain to a single point.
- ii. The disposal of decant water shall be in accordance with the requirements in Appendix 6 – Street Waste Disposal.
  - iii. Compliance with the inspection requirements of S5.C.9.d.i above, shall be determined by the presence of an established inspection program designed to inspect all catch basins and achieving at least 95% of required inspections.
- e. Each Permittee shall implement practices, policies, and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. Lands owned or maintained by the Permittee include, but are not limited to: parking lots, streets, roads, highways, buildings, parks, open space, road right-of-way, maintenance yards, and stormwater treatment and flow control BMPs/facilities.

The following activities shall be addressed:

- i. Pipe cleaning
- ii. Cleaning of culverts that convey stormwater in ditch systems
- iii. Ditch maintenance
- iv. Street cleaning
- v. Road repair and resurfacing, including pavement grinding
- vi. Snow and ice control
- vii. Utility installation
- viii. Maintaining roadside areas, including vegetation management

- ix. Dust control
  - x. Pavement striping maintenance
  - xi. Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
  - xii. Sediment and erosion control
  - xiii. Landscape maintenance and vegetation disposal
  - xiv. Trash and pet waste management
  - xv. Building exterior cleaning and maintenance
- f. Implement an ongoing training program for employees of the Permittee who have primary construction, operations or maintenance job functions may impact stormwater quality. The training program shall address the importance of protecting water quality, operation and maintenance standards, inspection procedures, selecting appropriate BMPs, ways to perform their job activities to prevent or minimize impacts to water quality, and procedures for reporting water quality concerns. Follow-up training shall be provided as needed to address changes in procedures, techniques, requirements, or staffing. Permittees shall document and maintain records of the training provided and the staff trained.
- g. Implement a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this permit that are not required to have coverage under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or another NPDES permit that authorizes stormwater discharges associated with the activity. A schedule for implementation of structural BMPs shall be included in the SWPPP. Generic SWPPPs that can be applied at multiple sites may be used to comply with this requirement. The SWPPP shall include periodic visual observation of discharges from the facility to evaluate the effectiveness of BMPs.
- h. Maintain records of inspections and maintenance or repair activities conducted by the Permittee.

#### 10. Education and Outreach Program

The SWMP shall include an education and outreach program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts and encourage the public to participate in stewardship activities. The education program may be developed and implemented locally or regionally.

Minimum performance measures:

- a. Each Permittee shall implement or participate in an education and outreach program that uses a variety of methods to target the audiences and topics listed below. The outreach program shall be designed to educate each target audience about the stormwater problem and provide specific actions they can follow to minimize the problem.
  - i. To build general awareness, Permittees shall target the following audiences and subject areas:
    - (1) General Public (including school age children), and businesses (including home-based and mobile business):
      - General impacts of stormwater on surface waters.
      - Impacts from impervious surfaces.
      - Impacts of illicit discharges and how to report them.
      - LID principles and LID BMPs.
      - Opportunities to become involved in stewardship activities.
    - (2) Engineers, contractors, developers, and land use planners:
      - Technical standards for stormwater site and erosion control plans.
      - LID principles and LID BMPs.
      - Stormwater treatment and flow control BMPs/facilities.
  - ii. To effect behavior change, Permittees shall target the following audiences and BMPs:
    - (1) General public (which may include school age children) and businesses (including home based and mobile businesses):
      - Use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps, and other hazardous materials.
      - Equipment maintenance.
      - Prevention of illicit discharges.
    - (2) Residents, landscapers and property managers/owners:
      - Yard care techniques protective of water quality.
      - Use and storage of pesticides and fertilizers and other household chemicals.
      - Carpet cleaning and auto repair and maintenance.
      - Vehicle, equipment, and home/building maintenance.
      - Pet waste management and disposal.
      - LID principles and LID BMPs.
      - Stormwater facility maintenance.
      - Dumpster and trash compactor maintenance.

- b. Each permittee shall create stewardship opportunities and/or partner with existing organizations to encourage residents to participate in activities such as stream teams, storm drain marking, volunteer monitoring, riparian plantings and education activities.
- c. Each Permittee shall measure the understanding and adoption of the targeted behaviors for at least one targeted audience in at least one subject area. No later than February 2, 2016, Permittees shall use the resulting measurements to direct education and outreach resources most effectively as well as to evaluate changes in adoption of the targeted behaviors. Permittees may meet this requirement individually or as a member of a regional group.

## **S6. STORMWATER MANAGEMENT PROGRAM FOR SECONDARY PERMITTEES**

- A. This section applies to all Secondary Permittees and all New Secondary Permittees whether coverage under this Permit is obtained individually, or as a Co-Permittee with a city, town, county, and/or another Secondary Permittee.

New Secondary Permittees subject to this Permit shall fully meet the requirements of this section as modified in footnotes in S6.D below, or as established as a condition of coverage by Ecology.

- 1. To the extent allowable under state, federal and local law, all components are mandatory for each Secondary Permittee covered under this permit, whether covered as an individual Permittee or as a Co-Permittee.
- 2. Each Secondary Permittee shall develop and implement a stormwater management program (SWMP). A SWMP is a set of actions and activities comprising the components listed in S6 and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements, and S8 Monitoring and Assessment. The SWMP shall be designed to reduce the discharge of pollutants from MS4s to the maximum extent practicable (MEP) and protect water quality.
- 3. Unless an alternate implementation schedule is established by Ecology as a condition of permit coverage, the SWMP shall be developed and implemented in accordance with the schedules contained in this section and shall be fully developed and implemented no later than four and one-half years from initial permit coverage date. Secondary Permittees that are already implementing some or all of the required SWMP components shall continue implementation of those components.
- 4. Secondary Permittees may implement parts of their SWMP in accordance with the schedule for cities, towns and counties in S5, provided they have signed a memorandum of understanding or other agreement to jointly implement the

activity or activities with one or more jurisdictions listed in S1.B, and submitted a copy of the agreement to Ecology.

5. Each Secondary Permittees shall prepare written documentation of the SWMP, called the SWMP Plan. The SWMP Plan shall include a description of program activities for the upcoming calendar year.
6. Conditions S6.A, S6.B, and S6.C are applicable to all Secondary Permittees covered under this permit. In addition:
  - a. S6.D is applicable to all Secondary Permittees except the Port of Seattle and the Port of Tacoma.
  - b. S6.E is applicable only to the Port of Seattle and the Port of Tacoma.

#### B. Coordination

Secondary Permittees shall coordinate stormwater-related policies, programs and projects within a watershed and interconnected MS4s. Where relevant and appropriate, the SWMP shall coordinate among departments of the Secondary Permittee to ensure compliance with the terms of this permit.

#### C. Legal Authority

To the extent allowable under state law and federal law, each Secondary Permittee shall be able to demonstrate that it can operate pursuant to legal authority which authorizes or enables the Secondary Permittee to control discharges to and from MS4s owned or operated by the Secondary Permittee.

This legal authority may be a combination of statutes, ordinances, permits, contracts, orders, interagency agreements, or similar instruments.

#### D. Stormwater Management Program for Secondary Permittees

The SWMP for Secondary Permittees shall include the following components:

##### 1. Public Education and Outreach

Each Secondary Permittee shall implement the following stormwater education strategies:

- a. Storm drain inlets owned or operated by the Secondary Permittee that are located in maintenance yards, in parking lots, along sidewalks, and at pedestrian access points shall be clearly labeled with the message similar to "Dump no waste – Drains to water body."<sup>5</sup>

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<sup>5</sup> New Secondary Permittees shall label all inlets as described in S6.D.1.a no later than four years from the initial date of permit coverage.

As identified during visual inspection and regular maintenance of storm drain inlets per the requirements of S6.D.3.d and S6.D.6.a.i below, or as otherwise reported to the Secondary Permittee, any inlet having a label that is no longer clearly visible and/or easily readable shall be re-labeled within 90 days.

- b. Each year, beginning no later than three years from the initial date of permit coverage, public ports, colleges, and universities shall distribute educational information to tenants and residents on the impact of stormwater discharges on receiving waters, and steps that can be taken to reduce pollutants in stormwater runoff. Distribution may be by hard copy or electronic means. Appropriate topics may include:
  - i. How stormwater runoff affects local waterbodies.
  - ii. Proper use and application of pesticides and fertilizers.
  - iii. Benefits of using well-adapted vegetation.
  - iv. Alternative equipment washing practices, including cars and trucks that minimize pollutants in stormwater.
  - v. Benefits of proper vehicle maintenance and alternative transportation choices; proper handling and disposal of vehicle wastes, including the location of hazardous waste collection facilities in the area.
  - vi. Hazards associated with illicit connections, and illicit discharges.
  - vii. Benefits of litter control and proper disposal of pet waste.

## 2. Public Involvement and Participation

Each year, no later than May 31, each Secondary Permittee shall:

- a. Make the annual report available on the Permittee's website.
- b. Make available on the Permittee's website the latest updated version of the SWMP Plan.
- c. A Secondary Permittee that does not maintain a website may submit their updated SWMP Plan in electronic format to Ecology for posting on Ecology's website.

### 3. Illicit Discharge Detection and Elimination

Each Secondary Permittee shall:

- a. From the initial date of permit coverage, comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern non-stormwater discharges.
- b. Implement appropriate policies prohibiting illicit discharges<sup>6</sup> and an enforcement plan to ensure compliance with illicit discharge policies.<sup>7</sup> These policies shall address, at a minimum: illicit connections; non-stormwater discharges, including spills of hazardous materials; and improper disposal of pet waste and litter.
  - i. Allowable discharges: The policies do not need to prohibit the following categories of non-stormwater discharges:
    - (1) Diverted stream flows
    - (2) Rising ground waters
    - (3) Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(b)(20))
    - (4) Uncontaminated pumped ground water
    - (5) Foundation drains
    - (6) Air conditioning condensation
    - (7) Irrigation water from agricultural sources that is commingled with urban stormwater
    - (8) Springs
    - (9) Uncontaminated water from crawl space pumps
    - (10) Footing drains
    - (11) Flows from riparian habitats and wetlands
    - (12) Discharges from emergency firefighting activities in accordance with S2 Authorized Discharges
    - (13) Non-stormwater discharges authorized by another NPDES or State Waste Discharge permit

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<sup>6</sup> New Secondary Permittees shall develop and implement appropriate policies prohibiting illicit discharges, and identify possible enforcement mechanisms as described in S6.D.3.b no later than one year from initial date of permit coverage.

<sup>7</sup> New Secondary Permittees shall develop and implement an enforcement plan as described in S6.D.3.b no later than 18 months from the initial date of permit coverage.

- ii. Conditionally allowable discharges: The policies may allow the following categories of non-stormwater discharges only if the stated conditions are met and such discharges are allowed by local codes:
  - (1) Discharges from potable water sources, including but not limited to water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be de-chlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4.
  - (2) Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities and water conservation efforts conducted by the Secondary Permittee and/or the local jurisdiction.
  - (3) Dechlorinated swimming pool, spa, and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenated if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.
  - (4) Street and sidewalk wash water, water used to control dust, and routine external building washdown that does not use detergents. The Secondary Permittee shall reduce these discharges through, at a minimum, public education activities and/or water conservation efforts conducted by the Secondary Permittee and/or the local jurisdiction. To avoid washing pollutants into the MS4, the Secondary Permittee shall minimize the amount of street wash and dust control water used.
  - (5) Other non-stormwater discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee which addresses control of such discharges.
- iii. The Secondary Permittee shall address any category of discharges in i or ii above if the discharge is identified as a significant source of pollutants to waters of the State.
- c. Maintain a storm sewer system map showing the locations of all known storm drain outfalls and discharge points, labeling the receiving waters (other than groundwater), and delineating the areas contributing runoff to each outfall and discharge point. Make the map (or completed portions of the map) available on request to Ecology and to the extent appropriate to other Permittees. The preferred format for mapping is an electronic format with fully described



mapping standards. An example description is provided on Ecology's website.<sup>8</sup>

- d. Conduct field inspections and visually inspect for illicit discharges at all known MS4 outfalls and discharge points. Visually inspect at least one third (on average) of all known outfalls and discharge points each year beginning no later than two years from the initial date of permit coverage. Implement procedures to identify and remove illicit discharges. Keep records of inspections and follow-up activities.
- e. Implement a spill response plan that includes coordination with a qualified spill responder.<sup>9</sup>
- f. No later than two years from initial date of permit coverage, provide staff training or coordinate with existing training efforts to educate staff on proper BMPs for preventing illicit discharges, including spills. Train all Permittee staff who, as part of their normal job responsibilities, have a role in preventing such illicit discharges.

#### 4. Construction Site Stormwater Runoff Control

From the initial date of permit coverage, each Secondary Permittee shall:

- a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern construction phase stormwater pollution prevention measures.
- b. Ensure that all construction projects under the functional control of the Secondary Permittee which require a construction stormwater permit obtain coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activities, or an individual NPDES permit prior to discharging construction related stormwater.
- c. Coordinate with the local jurisdiction regarding projects owned or operated by other entities which discharge into the Secondary Permittee's MS4, to assist the local jurisdiction with achieving compliance with all relevant ordinances, rules, and regulations of the local jurisdiction(s).
- d. Provide training or coordinate with existing training efforts to educate relevant staff in erosion and sediment control BMPs and requirements, or hire trained contractors to perform the work.

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<sup>8</sup> New Secondary Permittees shall meet the requirements of S6.D.3.c no later than four and one-half years from the initial date of permit coverage.

<sup>9</sup> New Secondary Permittees shall develop and implement a spill response plan as described in S6.D.3.e no later than four and one-half years from the initial date of permit coverage.

- e. Coordinate as requested with Ecology or the local jurisdiction to provide access for inspection of construction sites or other land disturbances, which are under the functional control of the Secondary Permittee during land disturbing activities and/or the construction period.

5. Post-Construction Stormwater Management for New Development and Redevelopment

From the initial date of permit coverage, each Secondary Permittee shall:

- a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Secondary Permittee is located that govern post-construction stormwater pollution prevention measures.
- b. Coordinate with the local jurisdiction regarding projects owned or operated by other entities which discharge into the Secondary Permittee's MS4, to assist the local jurisdiction with achieving compliance with all relevant ordinances, rules, and regulations of the local jurisdiction(s).

6. Pollution Prevention and Good Housekeeping for Municipal Operations

Each Secondary Permittee shall:

- a. Implement a municipal operation and maintenance (O&M) plan to minimize stormwater pollution from activities conducted by the Secondary Permittee. The O&M Plan shall include appropriate pollution prevention and good housekeeping procedures for all of the following operations, activities, and/or types of facilities that are present within the Secondary Permittee's boundaries and under the functional control of the Secondary Permittee.<sup>10</sup>
  - i. Stormwater collection and conveyance systems, including catch basins, stormwater pipes, open channels, culverts, and stormwater treatment and flow control BMPs/facilities. The O&M Plan shall address, at a minimum: scheduled inspections and maintenance activities, including cleaning and proper disposal of waste removed from the system. Secondary Permittees shall properly maintain stormwater collection and conveyance systems owned or operated by the Secondary Permittee and regularly inspect and maintain all stormwater facilities to ensure facility function.

Secondary Permittees shall establish maintenance standards that are as protective or more protective of facility function than those specified in Chapter 4 Volume V of the Stormwater Management Manual for Western Washington.

<sup>10</sup> New Secondary Permittees shall develop and implement the operation and maintenance plan described in S6.D.6.a no later than three and a half years from the initial date of permit coverage.

Secondary Permittees shall review their maintenance standards to ensure they are consistent with the requirements of this section.

Secondary Permittees shall conduct spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities following major storm events (24 hour storm event with a 10-year or greater recurrence interval).

- ii. Roads, highways, and parking lots. The O&M Plan shall address, but is not limited to: deicing, anti-icing, and snow removal practices; snow disposal areas; material (e.g., salt, sand, or other chemical) storage areas; all-season BMPs to reduce road and parking lot debris and other pollutants from entering the MS4.
  - iii. Vehicle fleets. The O&M Plan shall address, but is not limited to: storage, washing, and maintenance of Secondary Permittee vehicle fleets; and fueling facilities. Secondary Permittees shall conduct all vehicle and equipment washing and maintenance in a self-contained covered building or in designated wash and/or maintenance areas.
  - iv. External building maintenance. The O&M Plan shall address, building exterior cleaning and maintenance including cleaning, washing, painting; maintenance and management of dumpsters; other maintenance activities.
  - v. Parks and open space. The O&M Plan shall address, but is not limited to: proper application of fertilizer, pesticides, and herbicides; sediment and erosion control; BMPs for landscape maintenance and vegetation disposal; and trash and pet waste management.
  - vi. Material storage facilities, and heavy equipment maintenance or storage yards. Secondary Permittees shall develop and implement a Stormwater Pollution Prevention Plan to protect water quality at each of these facilities owned or operated by the Secondary Permittee and not covered under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or under another NPDES permit that authorizes stormwater discharges associated with the activity.
  - vii. Other facilities that would reasonably be expected to discharge contaminated runoff. The O&M Plan shall address proper stormwater pollution prevention practices for each facility.
- b. From the initial date of permit coverage, Secondary Permittees shall also have permit coverage for all facilities operated by the Secondary Permittee that are required to be covered under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or another NPDES permit that authorizes discharges associated with the activity.

- c. The O&M Plan shall include sufficient documentation and records as necessary to demonstrate compliance with the O&M Plan requirements in S6.D.6.a.i through vii above.
- d. No later than three years from the initial date of permit coverage, Secondary Permittees shall implement a program designed to train all employees whose primary construction, operations, or maintenance job functions may impact stormwater quality. The training shall address:
  - i. The importance of protecting water quality.
  - ii. The requirements of this Permit.
  - iii. Operation and maintenance requirements.
  - iv. Inspection procedures.
  - v. Ways to perform their job activities to prevent or minimize impacts to water quality.
  - vi. Procedures for reporting water quality concerns, including potential illicit discharges (including spills).

E. Stormwater Management Program for the Port of Seattle and Port of Tacoma

Permittees that are already implementing some or all of the Stormwater Management Program (SWMP) components in this section shall continue implementation of those components of their SWMP.

The SWMP for the Port of Seattle and the Port of Tacoma of shall include the following components:

1. Education Program

The SWMP shall include an education program aimed at tenants and Permittee employees. The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.

Minimum performance measure:

- a. The Permittee shall make educational materials available to tenants and Permittee employees whose job duties could impact stormwater.

2. Public Involvement and Participation

Each Permittee shall make the latest updated version of the SWMP Plan available to the public. The most recent SWMP Plan and Annual Report shall be posted on the Permittee's website.

### 3. Illicit Discharge Detection and Elimination

The SWMP shall include a program to identify, detect, remove and prevent illicit connections and illicit discharges, including spills, into the MS4s owned or operated by the Permittee.

Minimum performance measures:

- a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Permittee's MS4 is located that govern non-stormwater discharges.
- b. Implement appropriate policies prohibiting illicit discharges and an enforcement plan to ensure compliance with illicit discharge policies. These policies shall address, at a minimum: illicit connections; non-stormwater discharges, including spills of hazardous materials; and improper disposal of pet waste and litter.
  - i. Allowable Discharges: The policies do not need to prohibit the following categories of non-stormwater discharges:
    - (1) Diverted stream flows
    - (2) Rising ground waters
    - (3) Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(b)(20))
    - (4) Uncontaminated pumped ground water
    - (5) Foundation drains
    - (6) Air conditioning condensation
    - (7) Irrigation water from agricultural sources that is commingled with urban stormwater
    - (8) Springs
    - (9) Uncontaminated water from crawl space pumps
    - (10) Footing drains
    - (11) Flows from riparian habitats and wetlands
    - (12) Discharges from emergency firefighting activities in accordance with S2 Authorized Discharges
    - (13) Non-stormwater discharges authorized by another NPDES permit
  - ii. Conditionally allowable discharges: The policies may allow the following categories of non-stormwater discharges only if the stated conditions are met and such discharges are allowed by local codes:

- (1) Discharges from potable water sources, including but not limited to, water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be de-chlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4.
  - (2) Discharges from lawn watering and other irrigation runoff. These discharges shall be minimized through, at a minimum, public education activities and water conservation efforts conducted by the Permittee and/or the local jurisdiction.
  - (3) Dechlorinated swimming pool, spa, and hot tub discharges. The discharges shall be dechlorinated to a total residual chlorine concentration of 0.1 ppm or less, pH-adjusted and reoxygenated if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the MS4. Discharges shall be thermally controlled to prevent an increase in temperature of the receiving water. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.
  - (4) Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents. The Ports of Seattle and Tacoma shall reduce these discharges through, at a minimum, public education activities and/or water conservation efforts conducted by the Port and/or the local jurisdiction. To avoid washing pollutants into the MS4, the amount of street wash and dust control water used shall be minimized.
  - (5) Other non-stormwater discharges shall be in compliance with the requirements of a pollution prevention plan reviewed by the Permittee which addresses control of such discharges.
- iii. The Permittee shall address any category of discharges in i or ii above if the discharges are identified as significant source of pollutants to waters of the State.
- c. The SWMP shall include an ongoing program for gathering, maintaining, and using adequate information to conduct planning, priority setting, and program evaluation activities for Permittee-owned properties. Permittees shall gather and maintain mapping data for the features listed below on an ongoing basis:
- i. Known MS4 outfalls and discharge points, receiving waters (other than groundwater), and land uses for property owned by the Permittee, and all other properties served by MS4s known to and owned or operated by the Permittee.

- ii. Tributary conveyances (including size, material, and type attributes where known), and the associated drainage areas of MS4 outfalls and discharge points with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems. No later than December 31, 2017, each Permittee shall complete this requirement for all MS4 outfalls and discharge points with a 12 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems.
  - iii. Known connections greater than or equal to 8 inches in nominal diameter to tributary conveyances mapped in accordance with S6.E.3.c.ii. The mapping shall be completed no later than December 31, 2017.
  - iv. To the extent consistent with national security laws and directives, each Permittee shall make available to Ecology upon request, available maps depicting the information required in S6.E.3.c.i through iii, above. The required format for mapping is electronic with fully described mapping standards. An example description is available on Ecology's website.
  - v. Implement a program to document operation and maintenance records for stormwater treatment and flow control BMPs/facilities and catch basins.
  - vi. Upon request, and to the extent consistent with national security laws and directives, mapping information and operation and maintenance records shall be provided to the City or County in which the Permittee is located.
- d. Conduct field screening of at least 20% of the MS4 each year for the purpose of detecting illicit discharges and illicit connections. Field screening methodology shall be appropriate to the characteristics of the MS4 and water quality concerns. Implement procedures to identify and remove any illicit discharges and illicit connections. Keep records of inspections and follow-up activities.
  - e. Implement a spill response plan that includes coordination with a qualified spill responder.
  - f. Provide ongoing staff training or coordinate with existing training efforts to educate staff on proper BMPs for preventing illicit discharges, including spills, and for identifying, reporting, and responding as appropriate. Train all Permittee staff who, as part of their normal job responsibilities, have a role in preventing such discharges. Keep records of training provided and staff trained.
4. Construction Site Stormwater Runoff Control

The SWMP shall include a program to reduce pollutants in stormwater runoff from construction activities under the functional control of the Permittee.

Minimum performance measures:

- a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Permittee is located that govern construction phase stormwater pollution prevention measures. To the extent allowed by local ordinances, rules, and regulations, comply with the applicable minimum technical requirements for new development and redevelopment contained in Appendix 1.
  - b. Ensure all construction projects under the functional control of the Permittee which require a construction stormwater permit obtain coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activities or an individual NPDES permit prior to discharging construction related stormwater.
  - c. Coordinate with the local jurisdiction(s) regarding projects owned or operated by other entities which discharge into the Permittee's MS4, to assist the local jurisdiction(s) with achieving compliance with all relevant ordinances, rules, and regulations of the local jurisdiction(s).
  - d. Provide staff training or coordinate with existing training efforts to educate Permittee staff responsible for implementing construction stormwater erosion and sediment control BMPs and requirements, or hire trained contractors to perform the work.
  - e. Coordinate as requested with Ecology or the local jurisdiction to provide access for inspection of construction sites or other land disturbances that are under the functional control of the Permittee during active land disturbing activities and/or the construction period.
5. Post-Construction Stormwater Management for New Development and Redevelopment

The SWMP shall include a program to address post-construction stormwater runoff from new development and redevelopment projects. The program shall establish controls to prevent or minimize water quality impacts.

Minimum performance measures:

- a. Comply with all relevant ordinances, rules, and regulations of the local jurisdiction(s) in which the Permittee is located that govern post-construction stormwater pollution prevention measures, including proper operation and maintenance of the MS4. To the extent allowed by local ordinances, rules, and regulations, comply with the applicable the minimum technical requirements for new development and redevelopment contained in Appendix 1.



- b. Coordinate with the local jurisdiction regarding projects owned and operated by other entities which discharge into the Permittee's MS4, to assist the local jurisdiction in achieving compliance with all relevant ordinances, rules, and regulations of the local jurisdiction(s).

6. Operation and Maintenance Program

The SWMP shall include an operation and maintenance program for all stormwater treatment and flow control BMPs/facilities, and catch basins to ensure that BMPs continue to function properly.

Minimum performance measures:

- a. Each Permittee shall implement an operation and maintenance (O&M) manual for all stormwater treatment and flow control BMPs/facilities and catch basins that are under the functional control of the Permittee and which discharge stormwater to its MS4, or to an interconnected MS4.
  - i. Retain a copy of the O&M manual in the appropriate Permittee department and routinely update following discovery or construction of new stormwater facilities.
  - ii. The operation and maintenance manual shall establish facility-specific maintenance standards that are as protective, or more protective than those specified in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington. For existing stormwater facilities which do not have maintenance standards, the Permittee shall develop a maintenance standard. No later than July 1, 2016, each Permittee shall update maintenance standards, as necessary, to meet the requirements of this section.
  - iii. The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections. Exceeding the maintenance standards between inspections and/or maintenance is not a permit violation. Maintenance actions shall be performed within the time frames specified in S6.E.6.b.ii.
- b. The Permittee will manage maintenance activities to inspect all stormwater facilities listed in the O&M manual annually, and take appropriate maintenance action in accordance with the O&M manual.
  - i. The Permittee may change the inspection frequency to less than annually, provided the maintenance standards are still met. Reducing the annual inspection frequency shall be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the Permittee may substitute written statements to

document a specific less frequent inspection schedule. Written statements shall be based on actual inspection and maintenance experience and shall be certified in accordance with G19 Certification and Signature.

- ii. Unless there are circumstances beyond the Permittees control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:
  - (1) Within 1 year for wet pool facilities and retention/detention ponds.
  - (2) Within 1 year for typical maintenance of facilities, except catch basins.
  - (3) Within 6 months for catch basins.
  - (4) Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the Permittee's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedance of the required timeframe, the Permittee shall document the circumstances and how they were beyond their control.

- c. The Permittee shall provide appropriate training for Permittee maintenance staff.
- d. The Permittee will maintain records of inspections and maintenance activities.

#### 7. Source Control in existing Developed Areas

The SWMP shall include the development and implementation of one or more Stormwater Pollution Prevention Plans (SWPPPs). A SWPPP is a documented plan to identify and implement measures to prevent and control the contamination of discharges of stormwater to surface or ground water. SWPPP(s) shall be prepared and implemented for all Permittee-owned lands, except environmental mitigation sites owned by the Permittee, that are not covered by a NPDES permit issued by Ecology that authorizes stormwater discharges.

Minimum performance measures:

- a. SWPPP(s) shall be updated as necessary to reflect changes at the facility.
- b. The SWPPP(s) shall include a facility assessment including a site plan, identification of pollutant sources, and description of the drainage system.
- c. The SWPPP(s) shall include a description of the source control BMPs used or proposed for use by the Permittee. Source control BMPs shall be selected from the Stormwater Management Manual for Western Washington (or an equivalent Manual approved by Ecology). Implementation of non-structural

BMPs shall begin immediately after the pollution prevention plan is developed. Where necessary, a schedule for implementation of structural BMPs shall be included in the SWPPP(s).

- d. The Permittee shall maintain a list of sites covered by the SWPPP(s) required under this permit. At least 20% of the listed sites shall be inspected annually.
  - e. The SWPPP(s) shall include policies and procedures to reduce pollutants associated with the application of pesticides, herbicides and fertilizer.
  - f. The SWPPP(s) shall include measures to prevent, identify and respond to illicit discharges, including illicit connections, spills and improper disposal. When the Permittee submits a notification pursuant to G3, the Permittee shall also notify the City or County it is located in.
  - g. The SWPPP(s) shall include a component related to inspection and maintenance of stormwater facilities and catch basins that is consistent with the Permittee's O&M Program, as specified in S6.E.6 above.
8. Monitoring Program. Monitoring requirements for the Port of Seattle and Port of Tacoma are included in Special Condition S8.

#### **S7. COMPLIANCE WITH TOTAL MAXIMUM DAILY LOAD REQUIREMENTS**

The following requirements apply if an applicable Total Maximum Daily Load (TMDL) is approved for stormwater discharges from MS4s owned or operated by the Permittee. Applicable TMDLs are TMDLs which have been approved by EPA on or before the issuance date of this Permit, or prior to the date that Ecology issues coverage under this permit, whichever is later.

- A. For applicable TMDLs listed in Appendix 2, affected Permittees shall comply with the specific requirements identified in Appendix 2. Each Permittee shall keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction. The status of the TMDL implementation shall be included as part of the annual report submitted to Ecology. Each annual report shall include a summary of relevant SWMP and Appendix 2 activities conducted in the TMDL area to address the applicable TMDL parameter(s).
- B. For applicable TMDLs not listed in Appendix 2, compliance with this permit shall constitute compliance with those TMDLs.
- C. For TMDLs that are approved by EPA after this permit is issued, Ecology may establish TMDL-related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this permit or when this permit is reissued. Permittees are encouraged to

participate in development of TMDLs within their jurisdiction and to begin implementation.

## **S8. MONITORING AND ASSESSMENT**

- A. All Permittees including Secondary Permittees shall provide, in each annual report, a description of any stormwater monitoring or stormwater-related studies conducted by the Permittee during the reporting period. If other stormwater monitoring or stormwater-related studies were conducted on behalf of the Permittee during the reporting period, or if stormwater-related investigations conducted by other entities were reported to the Permittee during the reporting period, a brief description of the type of information gathered or received shall be included in the annual report.

Permittees are not required to provide descriptions of any monitoring, studies, or analyses conducted as part of the Regional Stormwater Monitoring Program (RSMP) in annual reports. If a Permittee conducts independent monitoring in accordance with requirements in S8.B or S8.C below, annual reporting of such monitoring must follow the requirements specified in those sections.

- B. Status and trends monitoring.

1. No later than October 15, 2013, King, Pierce, and Snohomish Counties, the Cities of Seattle and Tacoma, and the Ports of Seattle and Tacoma shall notify Ecology in writing which of the following two options for status and trends monitoring the Permittee chooses to carry out during this permit cycle. Either option will fully satisfy the Permittee's obligations under this section (S8.B.1). Each Permittee shall select a single option for the duration of this permit term.

- a. Status and Trends Monitoring Option #1: Each Permittee that chooses this option shall pay into a collective fund to implement RSMP small streams and marine nearshore status and trends monitoring in Puget Sound. The first payment into the collective fund is due to Ecology October 15, 2013, and subsequent payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are:

Permittee	First payment	Second and subsequent payments
King County	\$ 15,000	\$ 74,540
Pierce County	\$ 15,000	\$ 92,800
Port of Seattle	\$ 5,000	\$ 4,151
Port of Tacoma	\$ 5,000	\$ 4,151
City of Seattle	\$ 15,000	\$149,436
Snohomish County	\$ 15,000	\$ 73,452
City of Tacoma	\$ 15,000	\$ 49,861

**Or**

- b. Status and Trends Monitoring Option #2: Each Permittee that chooses this option shall conduct status and trends monitoring as follows:
  - i. Beginning no later than October 31, 2014 city and county Permittees shall conduct wadeable stream water quality, benthos, habitat, and sediment chemistry monitoring according to the Ecology-approved Quality Assurance Project Plan (QAPP) for RSMP Small Streams Status and Trends Monitoring at the first twelve qualified locations (as listed sequentially among the potential monitoring locations defined in the RSMP QAPP) that are located within the jurisdiction's boundaries. Counties shall monitor the first four locations inside UGA boundaries and the first eight locations outside UGA boundaries.
  - ii. Beginning no later than October 1, 2015, city and county Permittees and the Ports of Seattle and Tacoma shall conduct sediment chemistry, bacteria, and mussel monitoring according to the Ecology-approved QAPPs for RSMP Marine Nearshore Status and Trends Monitoring at the first eight qualified locations each, for sediment and for mussels and bacteria (as listed sequentially among the potential monitoring locations defined in the RSMP QAPPs), that are located adjacent to the Permittee's Puget Sound shoreline boundary.
  - iii. Data and analyses shall be reported annually in accordance with the Ecology-approved QAPPs.
- 2. Clark County shall:
  - a. Continue stormwater discharge monitoring at two of the three locations selected pursuant to S8.D in the Phase I Municipal Stormwater Permit February 16, 2007 – February 15, 2012 for the duration of this permit term. This monitoring and reporting of findings shall be conducted in accordance with the previously-approved QAPP until September 30, 2014.
  - b. No later than February 2, 2014 submit a revised QAPP to Ecology. The revised QAPP shall follow the specifications and deadlines in Appendix 9. If Ecology does not request changes within 90 days, the QAPP is considered approved. The final QAPP shall be submitted to Ecology as soon as possible following finalization, and before September 30, 2014.
  - c. If the County changes a discharge monitoring location, the County shall document in the revised QAPP why the pre-existing stormwater monitoring location is not a good location for additional monitoring and why the newly selected location is of interest for long term stormwater discharge monitoring.

C. Stormwater management program effectiveness studies. No later than December 1, 2013, Clark, King, Pierce, and Snohomish Counties, the Cities of Seattle and Tacoma,

and the Ports of Seattle and Tacoma shall notify Ecology in writing which of the following three options for effectiveness studies the Permittee chooses to carry out during this permit cycle. Any one of the three options will fully satisfy the Permittee's obligations under this section (S8.C). Each Permittee shall select a single option for the duration of this permit term.

1. Effectiveness Studies Option #1: Each Permittee that chooses this option shall pay into a collective fund to implement RSMP effectiveness studies. The payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are:

Permittee	Annual payment amount
Clark County	\$ 86,617
King County	\$124,196
Pierce County	\$154,619
Port of Seattle	\$ 6,916
Port of Tacoma	\$ 6,916
City of Seattle	\$248,986
Snohomish County	\$122,383
City of Tacoma	\$ 83,077

**Or**

2. Effectiveness Studies Option #2: Each Permittee that chooses this option shall conduct stormwater discharge monitoring in accordance with Appendix 9 and the following:
  - a. Each city and county Permittee, except Clark County, shall conduct stormwater discharge monitoring at five locations. Permittees are encouraged to continue stormwater monitoring at locations monitored under S8.D of the Phase I Municipal Stormwater Permit February 16, 2007 – February 15, 2012.

Any Permittee who would like to change a discharge monitoring location or add a new location shall document in the revised QAPP (see S8.C.2.c, below) why the pre-existing stormwater monitoring location is not a good location for additional monitoring and why the newly selected location is of interest for long term stormwater discharge monitoring and associated stormwater management program effectiveness evaluations.

Clark County shall either:

- i. Select and monitor five discharge monitoring locations in addition to the two discharge monitoring locations monitored pursuant to S8.B.2 above.

**Or**

- ii. Select and monitor two discharge monitoring locations in addition to the two discharge monitoring locations monitored pursuant to S8.B.2 and conduct receiving-water monitoring in wadeable streams or lakes at locations downstream of each of all four stormwater discharge monitoring locations.
  - (1) Receiving-water chemistry samples will be collected during and following the storm events for which the discharge monitoring is conducted, and for the same parameters.
  - (2) Sediment samples shall be collected during the month of May or June. Streambed sediment samples at these receiving-water monitoring locations shall be collected and analyzed pursuant to the RSMP Small Streams Status and Trends Monitoring QAPP and for any additional sediment parameters listed in Appendix 9; lake bed sediments shall be collected from the surficial sediment layer and analyzed for the same parameters.
  - (3) Explain in the revised QAPP (see S8.C.2.c below) why the receiving-water monitoring locations were selected and describe in detail the design of the receiving-water monitoring.
- b. Each port Permittee shall conduct stormwater discharge monitoring at two locations representing different pollution-generating activities or land uses. Permittees are encouraged to continue stormwater monitoring at locations monitored under S8.D of the Phase I Municipal Stormwater Permit February 16, 2007 – February 15, 2012. Any Permittee who would like to change a discharge monitoring location shall describe why the pre-existing stormwater monitoring location is not a good location for additional monitoring. The Permittee shall document why the newly selected location(s) are of interest for long term stormwater discharge monitoring and associated stormwater management program effectiveness evaluations.
- c. No later than February 2, 2014 each Permittee shall submit to Ecology a draft updated stormwater discharge monitoring QAPP for review and approval. If Ecology does not request changes within 90 days, the draft QAPP is considered approved. Final QAPPs shall be submitted to Ecology as soon as possible following finalization.
- d. Flow monitoring at new discharge monitoring locations shall begin no later than October 1, 2014. Stormwater discharge monitoring shall be fully implemented no later than October 1, 2014 at existing discharge monitoring locations and October 1, 2015 at new discharge monitoring locations. All monitoring shall be conducted in accordance with an Ecology-approved QAPP.

**Or**

3. Effectiveness Studies Option #3: Each Permittee that chooses this option shall both pay into a collective fund to implement RSMP effectiveness studies and independently conduct an effectiveness study that is not expected to be undertaken as part of the RSMP.
- a. Payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are:

<b>Permittee</b>	<b>Annual payment amount</b>
Clark County	\$ 43,308
King County	\$ 62,098
Pierce County	\$ 77,310
Port of Seattle	\$ 3,458
Port of Tacoma	\$ 3,458
City of Seattle	\$124,493
Snohomish County	\$ 61,192
City of Tacoma	\$ 41,538

**And**

- b. Conduct the independent effectiveness study in accordance with the requirements below:
- i. No later than February 2, 2014 submit to Ecology, for review and approval, a detailed proposal describing: the purpose, objectives, design, and methods of the independent effectiveness study; anticipated outcomes; expected modifications to the Permittee's stormwater management program; and relevance to other Permittees.
  - ii. Submit a draft QAPP to Ecology within 120 days of Ecology's approval of the detailed proposal. The QAPP shall be prepared in accordance with Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, July 2004 (Ecology Publication No. 04-03-030). The QAPP shall include reporting details including timely uploading of all relevant data to Ecology's EIM database and/or the International Stormwater BMP Database as appropriate. If Ecology does not request changes within 90 days of submittal, the QAPP is considered approved.
  - iii. Begin full implementation of the study no later than six months following Ecology's approval of the QAPP.



- iv. Describe interim results and status of the study implementation in annual reports throughout the duration of the study.
  - v. Report final results, including recommended future actions, to Ecology and on the Permittee's webpage no later than six months after completion of the study.
- D. Source identification and diagnostic monitoring. Clark, King, Pierce, and Snohomish Counties, the Cities of Seattle and Tacoma, and the Ports of Seattle and Tacoma shall pay into a collective fund to implement the RSMP Source Identification Information Repository (SIDIR). The payments into the collective fund are due to Ecology annually beginning August 15, 2014. The payment amounts are:

Permittee	Annual payment amount
Clark County	\$ 8,033
King County	\$11,518
Pierce County	\$14,339
Port of Seattle	\$ 641
Port of Tacoma	\$ 641
City of Seattle	\$23,091
Snohomish County	\$11,350
City of Tacoma	\$ 7,704

## S9. REPORTING REQUIREMENTS

- A. No later than March 31 of each year beginning in 2015, each Permittee shall submit an annual report. The reporting period for the first annual report will be from January 1, 2014 through December 31, 2014. The reporting period for all subsequent annual reports shall be the previous calendar year unless otherwise specified.

Permittees must submit annual reports electronically using Ecology's Water Quality Permitting Portal (WQWebPortal) available on Ecology's website at: <http://www.ecy.wa.gov/programs/wq/permits/paris/portal.html> unless otherwise directed by Ecology.

Permittees unable to submit electronically through Ecology's WQWebPortal must contact Ecology to request a waiver and obtain instructions on how to submit an annual report in an alternative format.

- B. Each Permittee is required to keep all records related to this permit and the SWMP for at least five years.
- C. Each Permittee shall make all records related to this permit and the Permittee's SWMP available to the public at reasonable times during business hours. The

Permittee will provide a copy of the most recent annual report to any individual or entity, upon request.

1. A reasonable charge may be assessed by the Permittee for making photocopies of records.
2. The Permittee may require reasonable advance notice of intent to review records related to this permit.

D. The annual report for Permittees listed in S1.B shall include the following:

1. A copy of the Permittee's current SWMP Plan as required by S5.A.1.
2. Submittal of the annual report form as provided by Ecology pursuant to S9.A, describing the status of implementation of the requirements of this permit during the reporting period.
3. Attachments to the annual report form including summaries, descriptions, reports, and other information as required, or as applicable, to meet the requirements of this permit during the reporting period. Refer to Appendix 12 for annual report questions.
4. If applicable, notice that the MS4 is relying on another governmental entity to satisfy any of the obligations under the permit.
5. Certification and signature pursuant to G19.D, and notification of any changes to authorization pursuant to G19.C.
6. A notification of any annexations, incorporations, or jurisdictional boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period.

E. Annual Report for Secondary Permittees, including the Port of Seattle and the Port of Tacoma

Each annual report shall include the following:

1. Submittal of the annual report as provided by Ecology pursuant to S9.A, describing the status of implementation of the requirements of this permit during the reporting period.
2. Attachments to the annual report form including summaries, descriptions, reports, and other information as required, or as applicable, to meet the requirements of this permit during the reporting period. Refer to Appendix 3 for annual report questions for the Ports of Seattle and Tacoma, and Appendix 4 for annual report questions for all other Secondary Permittees.

3. If applicable, notice that the MS4 is relying on another governmental entity to satisfy any of the obligations under this permit.
4. Certification and signature pursuant to G19.D, and notification of any changes to authorization pursuant to G19.C.
5. A notification of any jurisdictional boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period.

## **GENERAL CONDITIONS**

### **G1. DISCHARGE VIOLATIONS**

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

### **G2. PROPER OPERATION AND MAINTENANCE**

The Permittee shall at all times properly operate and maintain all facilities and systems of collection, treatment, and control (and related appurtenances) which are installed or used by the Permittee for pollution control to achieve compliance with the terms and conditions of this permit.

### **G3. NOTIFICATION OF DISCHARGE INCLUDING SPILLS**

If a Permittee has knowledge of a discharge, including spill(s), into or from a MS4, which could constitute a threat to human health, welfare, or the environment, the Permittee, shall:

- A. Take appropriate action to correct or minimize the threat to human health, welfare and/or the environment.
- B. Notify the Ecology regional office and other appropriate spill response authorities immediately but in no case later than within 24 hours of obtaining that knowledge. The Department of Ecology's Regional Office 24-hr. number is (425) 649-7000 for the Northwest Regional Office, and (360) 407-6300 for the Southwest Regional Office.
- C. Immediately report spills or other discharges which might cause bacterial contamination of marine waters, such as discharges resulting from broken sewer lines and failing onsite septic systems, to the Ecology regional office and to the Department of Health, Shellfish Program. The Department of Health's Shellfish number is (360) 236-3330 (business hours) or (360) 789-8962 (24-hours).
- D. Immediately report spills or discharges of oils or hazardous substances to the Ecology regional office and to the Washington Emergency Management Division, (800) 258-5990.

### **G4. BYPASS PROHIBITED**

The intentional bypass of stormwater from all or any portion of a stormwater treatment BMP whenever the design capacity of the treatment BMP is not exceeded, is prohibited unless the following conditions are met:

- A. Bypass is: (1) unavoidable to prevent loss of life, personal injury, or severe property damage; or (2) necessary to perform construction or maintenance-related activities essential to meet the requirements of the Clean Water Act (CWA); and

- B. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated stormwater, or maintenance during normal dry periods.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss.

**G5. RIGHT OF ENTRY**

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law at reasonable times:

- A. To enter upon the Permittee's premises where a discharge is located or where any records must be kept under the terms and conditions of this permit;
- B. To have access to, and copy at reasonable cost and at reasonable times, any records that must be kept under the terms of the permit;
- C. To inspect at reasonable times any monitoring equipment or method of monitoring required in the permit;
- D. To inspect at reasonable times any collection, treatment, pollution management, or discharge facilities; and
- E. To sample at reasonable times any discharge of pollutants.

**G6. DUTY TO MITIGATE**

The Permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.

**G7. PROPERTY RIGHTS**

This permit does not convey any property rights of any sort, or any exclusive privilege.

**G8. COMPLIANCE WITH OTHER LAWS AND STATUTES**

Nothing in the permit shall be construed as excusing the Permittee from compliance with any other applicable federal, state, or local statutes, ordinances, or regulations.

**G9. MONITORING**

- A. Representative Sampling: Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

- B. Records Retention: The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology. On request, monitoring data and analysis must be provided to Ecology.
- C. Recording of Results: For each measurement or sample taken, the Permittee shall record the following information: (1) the date, exact place and time of sampling; (2) the individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.
- D. Test Procedures: All sampling and analytical methods used to meet the monitoring requirements in this Permit shall conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136, unless otherwise specified in this permit or approved in writing by Ecology.
- E. Flow Measurement: Where flow measurements are required by other conditions of this Permit, appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated, and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations or at a minimum frequency of at least one calibration per year. Calibration records should be maintained for a minimum of three years.
- F. Lab Accreditation: All monitoring data, except for flow, temperature, conductivity, pH, total residual chlorine, and other exceptions approved by Ecology, shall be prepared by a laboratory registered or accredited under the provisions of, Accreditation of Environmental Laboratories, chapter 173-50 WAC. Soils and hazardous waste data are exempted from this requirement pending accreditation of laboratories for analysis of these media by Ecology. Quick methods of field detection of pollutants including nutrients, surfactants, salinity, and other parameters are exempted from this requirement when the purpose of the sampling is identification and removal of a suspected illicit discharge.
- G. Additional Monitoring: Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

**G10. REMOVED SUBSTANCES**

With the exception of decant from street waste vehicles, the Permittee must not allow collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to be resuspended or reintroduced to the storm sewer system or to waters of the state. Decant from street waste vehicles resulting from cleaning stormwater facilities may be reintroduced only when other practical means are not available and only in accordance with the Street Waste Disposal Guidelines in Appendix 6. Solids generated from maintenance of the MS4 may be reclaimed, recycled, or reused when allowed by local codes and ordinances. Soils that are identified as contaminated pursuant to chapter 173-350 WAC shall be disposed at a qualified solid waste disposal facility (see Appendix 6).

**G11. SEVERABILITY**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

**G12. REVOCATION OF COVERAGE**

The director may terminate coverage under this General Permit in accordance with Chapter 43.21B RCW and chapter 173-226 WAC. Cases where coverage may be terminated include, but are not limited to the following:

- A. Violation of any term or condition of this general permit;
- B. Obtaining coverage under this general permit by misrepresentation or failure to disclose fully all relevant facts;
- C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;
- D. A determination that the permitted activity endangers human health or the environment, or contributes significantly to water quality standards violations;
- E. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090;
- F. Nonpayment of permit fees assessed pursuant to RCW 90.48.465;

Revocation of coverage under this general permit may be initiated by Ecology or requested by any interested person.

**G13. TRANSFER OF COVERAGE**

The director may require any discharger authorized by this general permit to apply for and obtain an individual permit in accordance with Chapter 43.21B RCW and chapter 173-226 WAC.

**G14. GENERAL PERMIT MODIFICATION AND REVOCATION**

This general permit may be modified, revoked and reissued, or terminated in accordance with the provisions of WAC 173-226-230. Grounds for modification, revocation and reissuance, or termination include, but are not limited to the following:

- A. A change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this general permit;
- B. Effluent limitation guidelines or standards are promulgated pursuant to the CWA or chapter 90.48 RCW, for the category of dischargers covered under this general permit;
- C. A water quality management plan containing requirements applicable to the category of dischargers covered under this general permit is approved;
- D. Information is obtained which indicates that cumulative effects on the environment from dischargers covered under this general permit are unacceptable; or
- E. Changes made to State law reference this permit.

**G15. REPORTING A CAUSE FOR MODIFICATION OR REVOCATION**

A Permittee who knows or has reason to believe that any activity has occurred or will occur which would constitute cause for modification or revocation and reissuance under Condition G12, G14, or 40 CFR 122.62 shall report such plans, or such information, to Ecology so that a decision can be made on whether action to modify, or revoke and reissue this permit will be required. Ecology may then require submission of a new or amended application. Submission of such application does not relieve the Permittee of the duty to comply with this permit until it is modified or reissued.

**G16. APPEALS**

- A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal within thirty days of issuance of this general permit, in accordance with chapter 43.21B RCW, and chapter 173-226 WAC.
- B. The terms and conditions of this general permit, as they apply to an individual discharger, can be appealed, in accordance with chapter 43.21B RCW, within thirty days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.
- C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.



- D. Modifications of this permit can be appealed in accordance with chapter 43.21B RCW and chapter 173-226 WAC.

**G17. PENALTIES**

40 CFR 122.41(a)(2) and (3), 40 CFR 122.41(j)(5), and 40 CFR 122.41(k)(2) are hereby incorporated into this permit by reference.

**G18. DUTY TO REAPPLY**

The Permittee shall apply for permit renewal at least 180 days prior to the specified expiration date of this permit.

**G19. CERTIFICATION AND SIGNATURE**

All formal submittals to Ecology shall be signed and certified.

- A. All permit applications shall be signed by either a principal executive officer or ranking elected official.
- B. All formal submittals required by this Permit shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
1. The authorization is made in writing by a person described above and submitted to Ecology, and
  2. The authorization specifies either an individual or a position having responsibility for the overall development and implementation of the stormwater management program. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
- C. Changes to authorization. If an authorization under General Condition G19.B.2 is no longer accurate because a different individual or position has responsibility for the overall development and implementation of the stormwater management program, a new authorization satisfying the requirements of General Condition G19.B.2 must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.
- D. Certification. Any person signing a formal submittal under this permit must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for willful violations."

**G20. NON-COMPLIANCE NOTIFICATION**

In the event a Permittee is unable to comply with any of the terms and conditions of this Permit, the Permittee must:

- A. Notify Ecology of the failure to comply with the permit terms and conditions in writing within 30 days of becoming aware that the non-compliance has occurred. The written notification to Ecology must include all of the following:
  - 1. A description of the non-compliance, including the reference(s).
  - 2. Beginning and ending dates of the non-compliance, or if the Permittee has not corrected the non-compliance, the anticipated date of correction.
  - 3. Steps taken or planned to reduce, eliminate, or prevent reoccurrence of the non-compliance.
- B. Take appropriate action to stop or correct the condition of non-compliance.

**G21. UPSETS**

Permittees shall meet the conditions of 40 CFR 122.41(n) regarding "Upsets." The conditions are as follows:

- A. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- B. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (C) of this condition are met. Any determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, will not constitute final administrative action subject to judicial review.
- C. Conditions necessary for demonstration of upset. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
  - 1. An upset occurred and that the Permittee can identify the cause(s) of the upset;
  - 2. The permitted facility was at the time being properly operated; and
  - 3. The Permittee submitted notice of the upset as required in 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice of noncompliance).
  - 4. The Permittee complied with any remedial measures required under 40 CFR 122.41(d) (Duty to Mitigate).
- D. Burden of proof. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

## DEFINITIONS AND ACRONYMS

This section includes definitions for terms used in the body of the permit and in all the appendices except Appendix 1. Terms defined in Appendix 1 are necessary to implement requirements related to Appendix 1.

*40 CFR* means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

*AKART* means All Known, Available and Reasonable methods of prevention, control and Treatment. See also State Water Pollution Control Act, chapter 90.48.010 and 90.48.520 RCW.

*All Known, Available and Reasonable methods of prevention, control and Treatment* refers to the State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.

*Applicable TMDL* means a TMDL which has been approved by EPA on or before the issuance date of this Permit, or prior to the date that Ecology issues coverage under this Permit, whichever is later.

*Beneficial Uses* means uses of waters of the state, which include but are not limited to: use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

*Best Management Practices* are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

*B-IBI* means Benthic Index of Biotic Integrity.

*BMP* means Best Management Practice.

*Bypass* means the diversion of stormwater from any portion of a stormwater treatment facility.

*Circuit* means a portion of a MS4 discharging to a single point or serving a discrete area determined by traffic volumes, land use, topography, or the configuration of the MS4.

*Component* or *Program Component* means an element of the Stormwater Management Program listed in Special Condition S5 Stormwater Management Program for Permittees or S6 Stormwater Management Program for Secondary Permittees, or S7 Compliance with Total Maximum Daily Load Requirements, or S8 Monitoring and Assessment.

*Conveyance system* means that portion of the municipal separate storm sewer system designed or used for conveying stormwater.

*Co-Permittee* means an owner or operator of a MS4 which is in a cooperative agreement with at least one other applicant for coverage under this permit. A co-permittee is an owner or operator of a regulated MS4 located within or in proximity to another regulated MS4. A Co-Permittee is only responsible for permit conditions relating to the discharges from the MS4 the Co-Permittee owns or operates. See also 40 CFR 122.26(b)(1).

## DEFINITIONS AND ACRONYMS

*CWA* means the federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 *et seq.*).

*Director* means the Director of the Washington State Department of Ecology, or an authorized representative.

*Discharge Point* means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

*Entity* means a governmental body, or a public or private organization.

*EPA* means the U.S. Environmental Protection Agency.

*General Permit* means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

*Ground Water* means water in a saturated zone or stratum beneath the surface of the land or below a surface water body. Refer to chapter 173-200 WAC.

*Hazardous Substance* means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or WAC 173-303-100.

*Heavy equipment maintenance or storage yard* means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long term basis.

*Highway* means a main public road connecting towns and cities.

*Hydraulically Near* means runoff from the site discharges to the sensitive feature without significant natural attenuation of flows that allows for suspended solids removal. See Appendix 7 Determining Construction Site Sediment Damage Potential for a more detailed definition.

*Hyperchlorinated* means water that contains more than 10 mg/Liter chlorine.

*Illicit Connection* means any infrastructure connection to the MS4 that is not intended, permitted, or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this permit (S5.C.8, S6.D.3, and S6.E.3). Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the MS4.

*Illicit Discharge* means any discharge to a MS4 that is not composed entirely of stormwater or of non-stormwater discharges allowed as specified in this Permit (S5.C.8, S6.D.3 and S6.E.3).

*Impervious Surface* means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios,

driveways, parking lots or stormwater areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater.

*Land disturbing activity* means any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered land disturbing activity. Vegetation maintenance practices, including landscape maintenance and gardening, are not considered land disturbing activity. Stormwater facility maintenance is not considered land disturbing activity if conducted according to established standards and procedures.

*LID* means Low Impact Development.

*LID BMP* means Low Impact Development Best Management Practices.

*LID Principles* means land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

*Low Impact Development* means a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

*Low Impact Development Best Management Practices* means distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water re-use.

*Material Storage Facilities* means an uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

*Maximum Extent Practicable* refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water Act which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

*MEP* means Maximum Extent Practicable.

*MS4* means Municipal Separate Storm Sewer System.

*Municipal separate storm sewer system* means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

- (i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal

of wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the State.

(ii) Designed or used for collecting or conveying stormwater.

(iii) Which is not a combined sewer.

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

(v) Which is defined as “large” or “medium” or “small” or otherwise designated by Ecology pursuant to 40 CFR 122.26.

*National Pollutant Discharge Elimination System* means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

*Native Vegetation* means vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

“New Development” means land disturbing activities, including Class IV-General Forest Practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of hard surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development. Refer to Appendix 1 for a definition of hard surfaces.

*New Secondary Permittee* means a Secondary Permittee that is covered under a Municipal Stormwater General Permit and was not covered by the permit prior to August 1, 2013.

*NOI* means Notice of Intent.

*Notice of Intent* means the application for, or a request for coverage under a General NPDES Permit pursuant to WAC 173-226-200.

*Notice of Intent for Construction Activity* means the application form for coverage under the Construction Stormwater General Permit.

*Notice of Intent for Industrial Activity* means the application form for coverage under the General Permit for Stormwater Discharges Associated with Industrial Activities.

*NPDES* means National Pollutant Discharge Elimination System.

*O&M* means operation and maintenance.

*Outfall* means point source as defined by 40 CFR 122.2 at the point where a discharge means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).

*Permittee* unless otherwise noted, includes city, town, or county Permittee, port Permittee, Co-Permittee, Secondary Permittee, and New Secondary Permittee.

*Physically Interconnected* means that one MS4 is connected to another storm sewer system in such a way that it allows for direct discharges to the second system. For example, the roads with drainage systems and municipal streets of one entity are physically connected directly to a storm sewer system belonging to another entity.

*Project Site* means that portion of a property, properties, or right-of-ways subject to land disturbing activities, new hard surfaces, or replaced hard surfaces. Refer to Appendix 1 for a definition of hard surfaces.

*QAPP* means Quality Assurance Project Plan.

*Qualified Personnel* means someone who has had professional training in the aspects of stormwater management for which they are responsible and are under the functional control of the Permittee. Qualified Personnel may be staff members, contractors, or volunteers.

*Quality Assurance Project Plan* means a document that describes the objectives of an environmental study and the procedures to be followed to achieve those objectives.

*RCW* means the Revised Code of Washington State.

*Receiving waterbody* or *Receiving waters* means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or ground water, to which a MS4 discharges. *Redevelopment* means, on a site that is already substantially developed (i.e., has 35% or more of existing hard surface coverage), the creation or addition of hard surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of hard surface that is not part of a routine maintenance activity; and land disturbing activities. Refer to Appendix 1 for a definition of hard surfaces.

*Regional Stormwater Monitoring Program* means for all of western Washington, a stormwater-focused monitoring and assessment program consisting of these components: status and trends monitoring in small streams and marine nearshore areas, stormwater management program effectiveness studies, and a source identification information repository (SIDIR). The priorities and scope for the RSMP are set by a formal stakeholder group. For this permit term, RSMP status and trends monitoring will be conducted in the Puget Sound basin only.

*RSMP* means Regional Stormwater Monitoring Program.

*Runoff* is water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system. See also "Stormwater."

## DEFINITIONS AND ACRONYMS

*Secondary Permittee* is an operator of a MS4 which is not a city, town or county. Secondary Permittees include special purpose districts and other public entities that meet the criteria in SI.E.1.

*Sediment/Erosion-Sensitive Feature* means an area subject to significant degradation due to the effect of construction runoff, or areas requiring special protection to prevent erosion. See Appendix 7 Determining Construction Site Sediment Transport Potential for a more detailed definition.

*Shared Waterbodies* means waterbodies, including downstream segments, lakes and estuaries, that receive discharges from more than one Permittee.

*SIDIR* means a Source Identification Information Repository.

*Significant Contributor* means a discharge that contributes a loading of pollutants considered to be sufficient to cause or exacerbate the deterioration of receiving water quality or instream habitat conditions.

*Source Control BMP* means a structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The SWMMWW separates source control BMPs into two types. Structural Source Control BMPs are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. Operational BMPs are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV of the SWMMWW for details.

*Stormwater* means runoff during and following precipitation and snowmelt events, including surface runoff, drainage, and interflow.

*Stormwater Associated with Industrial and Construction Activity* means the discharge from any conveyance which is used for collecting and conveying stormwater, which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, or associated with clearing, grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.

*Stormwater facilities regulated by the Permittee* means permanent stormwater treatment and flow control BMPs/facilities located in the geographic area covered by the permit and which are not owned by the Permittee, and are known by the permittee to discharge into MS4 owned or operated by the Permittee.

*Stormwater Management Program* means a set of actions and activities designed to reduce the discharge of pollutants from the MS4 to the MEP and to protect water quality, and comprising the components listed in S5 or S6 of this Permit and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements, and S8 Monitoring and Assessment.

*Stormwater Treatment and Flow Control BMPs/Facilities* means detention facilities, treatment BMPs/facilities, bioretention, vegetated roofs, and permeable pavements that help meet minimum requirement #6 (treatment), #7 (flow control), or both.

*SWMMWW and Stormwater Management Manual for Western Washington* refer to the Stormwater Management Manual for Western Washington as amended in 2014.



## DEFINITIONS AND ACRONYMS

*SWMP* means Stormwater Management Program.

*TMDL* means Total Maximum Daily Load.

*Total Maximum Daily Load* means a water cleanup plan. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

*Tributary Conveyance* means pipes, ditches, catch basins, and inlets owned or operated by the Permittee and designed or used for collecting and conveying stormwater.

*UGA* means Urban Growth Area.

*Urban Growth Area* means those areas designated by a county pursuant to RCW 36.70A.110.

*Urban/higher density rural sub-basins* means all areas within or proposed to be within the UGA, or any sub-basin outside the UGA with 50% or more area comprised of lots less than 5 acres.

*Vehicle Maintenance or Storage Facility* means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

*Water Quality Standards* means Surface Water Quality Standards, chapter 173-201A WAC, Ground Water Quality Standards, chapter 173-200 WAC, and Sediment Management Standards, chapter 173-204 WAC.

*Waters of the State* includes those waters as defined as *Waters of the United States* in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and *Waters of the State* as defined in chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.

*Waters of the United States* refers to the definition in 40 CFR 122.2.

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Issuance Date: November 18, 2015  
Effective Date: January 1, 2016  
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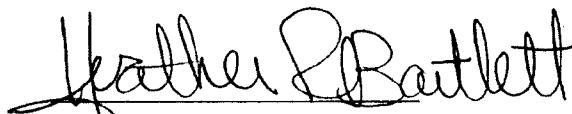
# **CONSTRUCTION STORMWATER GENERAL PERMIT**

National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General  
Permit for Stormwater Discharges Associated with Construction Activity

**State of Washington  
Department of Ecology  
Olympia, Washington 98504**

In compliance with the provisions of  
Chapter 90.48 Revised Code of Washington  
(State of Washington Water Pollution Control Act)  
and  
Title 33 United States Code, Section 1251 et seq.  
The Federal Water Pollution Control Act (The Clean Water Act)

Until this permit expires, is modified, or revoked, Permittees that have properly obtained  
coverage under this general permit are authorized to discharge in accordance with the special and  
general conditions that follow.



Heather R. Bartlett  
Water Quality Program Manager  
Washington State Department of Ecology

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## SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions within this permit for additional submittal requirements. Appendix A provides a list of definitions. Appendix B provides a list of acronyms.

**Table 1: Summary of Required Submittals**

<b>Permit Section</b>	<b>Submittal</b>	<b>Frequency</b>	<b>First Submittal Date</b>
<u>S5.A</u> and <u>S8</u>	High Turbidity/Transparency Phone Reporting	As Necessary	Within 24 hours
<u>S5.B</u>	Discharge Monitoring Report	Monthly*	Within 15 days following the end of each month
<u>S5.F</u> and <u>S8</u>	Noncompliance Notification – Telephone Notification	As necessary	Within 24-hours
<u>S5.F</u>	Noncompliance Notification – Written Report	As necessary	Within 5 Days of non-compliance
<u>S9.C</u>	Request for Chemical Treatment Form	As necessary	Written approval from Ecology is required prior to using chemical treatment (with the exception of dry ice or CO <sub>2</sub> to adjust pH)
<u>G2</u>	Notice of Change in Authorization	As necessary	
<u>G6</u>	Permit Application for Substantive Changes to the Discharge	As necessary	
<u>G8</u>	Application for Permit Renewal	1/permit cycle	No later than 180 days before expiration
<u>G9</u>	Notice of Permit Transfer	As necessary	
<u>G20</u>	Notice of Planned Changes	As necessary	
<u>G22</u>	Reporting Anticipated Non-compliance	As necessary	

**SPECIAL NOTE:** \*Permittees must submit electronic Discharge Monitoring Reports (DMRs) to the Washington State Department of Ecology monthly, regardless of site discharge, for the full duration of permit coverage. Refer to Section S5.B of this General Permit for more specific information regarding DMRs.

**Table 2: Summary of Required On-site Documentation**

<b>Document Title</b>	<b>Permit Conditions</b>
Permit Coverage Letter	See Conditions <u>S2</u> , <u>S5</u>
Construction Stormwater General Permit	See Conditions <u>S2</u> , <u>S5</u>
Site Log Book	See Conditions <u>S4</u> , <u>S5</u>
Stormwater Pollution Prevention Plan (SWPPP)	See Conditions <u>S9</u> , <u>S5</u>

## **SPECIAL CONDITIONS**

### **S1. PERMIT COVERAGE**

#### **A. Permit Area**

This Construction Stormwater General Permit (CSWGP) covers all areas of Washington State, except for federal operators and Indian Country as specified in Special Condition S1.E.3.

#### **B. Operators Required to Seek Coverage Under this General Permit:**

1. Operators of the following construction activities are required to seek coverage under this CSWGP:
  - a. Clearing, grading and/or excavation that results in the disturbance of one or more acres (including off-site disturbance acreage authorized in S1.C.2) and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State.
    - i. This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, and discharge to surface waters of the State (that is, forest practices that prepare a site for construction activities); and
  - b. Any size construction activity discharging stormwater to waters of the State that the Washington State Department of Ecology (Ecology):
    - i. Determines to be a significant contributor of pollutants to waters of the State of Washington.
    - ii. Reasonably expects to cause a violation of any water quality standard.
2. Operators of the following activities are not required to seek coverage under this CSWGP (unless specifically required under Special Condition S1.B.1.b. above):
  - a. Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.
  - b. Construction activities covered under an Erosivity Waiver (Special Condition S2.C).
  - c. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

C. Authorized Discharges:

1. *Stormwater Associated with Construction Activity.* Subject to compliance with the terms and conditions of this permit, Permittees are authorized to discharge stormwater associated with construction activity to surface waters of the State or to a storm sewer system that drains to surface waters of the State. (Note that “surface waters of the State” may exist on a construction site as well as off site; for example, a creek running through a site.)
2. *Stormwater Associated with Construction Support Activity.* This permit also authorizes stormwater discharge from support activities related to the permitted construction site (for example, an on-site portable rock crusher, off-site equipment staging yards, material storage areas, borrow areas, etc.) provided:
  - a. The support activity relates directly to the permitted construction site that is required to have an NPDES permit; and
  - b. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and
  - c. Appropriate controls and measures are identified in the Stormwater Pollution Prevention Plan (SWPPP) for the discharges from the support activity areas.
3. *Non-Stormwater Discharges.* The categories and sources of non-stormwater discharges identified below are authorized conditionally, provided the discharge is consistent with the terms and conditions of this permit:
  - a. Discharges from fire-fighting activities.
  - b. Fire hydrant system flushing.
  - c. Potable water, including uncontaminated water line flushing.
  - d. Hydrostatic test water.
  - e. Uncontaminated air conditioning or compressor condensate.
  - f. Uncontaminated ground water or spring water.
  - g. Uncontaminated excavation dewatering water (in accordance with S9.D.10).
  - h. Uncontaminated discharges from foundation or footing drains.
  - i. Uncontaminated water used to control dust. Permittees must minimize the amount of dust control water used.
  - j. Routine external building wash down that does not use detergents.
  - k. Landscape irrigation water.

The SWPPP must adequately address all authorized non-stormwater discharges, except for discharges from fire-fighting activities, and must comply with Special Condition S3.



At a minimum, discharges from potable water (including water line flushing), fire hydrant system flushing, and pipeline hydrostatic test water must undergo the following: dechlorination to a concentration of 0.1 parts per million (ppm) or less, and pH adjustment to within 6.5 – 8.5 standard units (su), if necessary.

D. Prohibited Discharges:

The following discharges to waters of the State, including ground water, are prohibited.

1. Concrete wastewater.
2. Wastewater from washout and clean-up of stucco, paint, form release oils, curing compounds and other construction materials.
3. Process wastewater as defined by 40 Code of Federal Regulations (CFR) 122.2 (see Appendix A of this permit).
4. Slurry materials and waste from shaft drilling, including process wastewater from shaft drilling for construction of building, road, and bridge foundations unless managed according to Special Condition S9.D.9.j.
5. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
6. Soaps or solvents used in vehicle and equipment washing.
7. Wheel wash wastewater, unless managed according to Special Condition S9.D.9.
8. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, unless managed according to Special Condition S9.D.10.

E. Limits on Coverage

Ecology may require any discharger to apply for and obtain coverage under an individual permit or another more specific general permit. Such alternative coverage will be required when Ecology determines that this CSWGP does not provide adequate assurance that water quality will be protected, or there is a reasonable potential for the project to cause or contribute to a violation of water quality standards.

The following stormwater discharges are not covered by this permit:

1. Post-construction stormwater discharges that originate from the site after completion of construction activities and the site has undergone final stabilization.
2. Non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance, from which there is natural runoff as excluded in 40 CFR Subpart 122.
3. Stormwater from any federal operator.

4. Stormwater from facilities located on “Indian Country” as defined in 18 U.S.C. §1151, except portions of the Puyallup Reservation as noted below.

Indian Country includes:

- a. All land within any Indian Reservation notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation. This includes all federal, tribal, and Indian and non-Indian privately owned land within the reservation.
- b. All off-reservation Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.
- c. All off-reservation federal trust lands held for Native American Tribes.

Puyallup Exception: Following the *Puyallup Tribes of Indians Land Settlement Act of 1989*, 25 U.S.C. §1773; the permit does apply to land within the Puyallup Reservation except for discharges to surface water on land held in trust by the federal government.

5. Stormwater from any site covered under an existing NPDES individual permit in which stormwater management and/or treatment requirements are included for all stormwater discharges associated with construction activity.
6. Stormwater from a site where an applicable Total Maximum Daily Load (TMDL) requirement specifically precludes or prohibits discharges from construction activity.

## **S2. APPLICATION REQUIREMENTS**

### **A. Permit Application Forms**

#### **1. Notice of Intent Form/Timeline**

- a. Operators of new or previously unpermitted construction activities must submit a complete and accurate permit application (Notice of Intent, or NOI) to Ecology.
- b. Operators must apply using the electronic application form (NOI) available on Ecology’s website <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

Department of Ecology  
Water Quality Program - Construction Stormwater  
PO Box 47696  
Olympia, Washington 98504-7696

- c. The operator must submit the NOI at least 60 days before discharging stormwater from construction activities and must submit it on or before the date of the first public notice (see Special Condition S2.B below for details). The 30-day public comment period begins on the publication date of the second public notice. Unless Ecology responds to the complete application in writing, based on public comments, or any other relevant factors, coverage under the general permit will automatically commence on the thirty-first day following receipt by Ecology of a completed NOI, or the issuance date of this permit, whichever is later; unless Ecology specifies a later date in writing as required by WAC173-226-200(2).
- d. If an applicant intends to use a Best Management Practice (BMP) selected on the basis of Special Condition S9.C.4 (“demonstrably equivalent” BMPs), the applicant must notify Ecology of its selection as part of the NOI. In the event the applicant selects BMPs after submission of the NOI, it must provide notice of the selection of an equivalent BMP to Ecology at least 60 days before intended use of the equivalent BMP.
- e. Permittees must notify Ecology regarding any changes to the information provided on the NOI by submitting an updated NOI. Examples of such changes include, but are not limited to:
  - i. Changes to the Permittee’s mailing address,
  - ii. Changes to the on-site contact person information, *and*
  - iii. Changes to the area/acreage affected by construction activity.
- f. Applicants must notify Ecology if they are aware of contaminated soils and/or groundwater associated with the construction activity. Provide detailed information with the NOI (as known and readily available) on the nature and extent of the contamination (concentrations, locations, and depth), as well as pollution prevention and/or treatment BMPs proposed to control the discharge of soil and/or groundwater contaminants in stormwater. Examples of such detail may include, but are not limited to:
  - i. List or table of all known contaminants with laboratory test results showing concentration and depth,
  - ii. Map with sample locations,
  - iii. Temporary Erosion and Sediment Control (TESC) plans,
  - iv. Related portions of the Stormwater Pollution Prevention Plan (SWPPP) that address the management of contaminated and potentially contaminated construction stormwater and dewatering water,
  - v. Dewatering plan and/or dewatering contingency plan.

## 2. Transfer of Coverage Form

The Permittee can transfer current coverage under this permit to one or more new operators, including operators of sites within a Common Plan of Development, provided the Permittee submits a Transfer of Coverage Form in accordance with General Condition G9. Transfers do not require public notice.

## B. Public Notice

For new or previously unpermitted construction activities, the applicant must publish a public notice at least one time each week for two consecutive weeks, at least 7 days apart, in a newspaper with general circulation in the county where the construction is to take place. The notice must contain:

1. A statement that “The applicant is seeking coverage under the Washington State Department of Ecology’s Construction Stormwater NPDES and State Waste Discharge General Permit”.
2. The name, address and location of the construction site.
3. The name and address of the applicant.
4. The type of construction activity that will result in a discharge (for example, residential construction, commercial construction, etc.), and the number of acres to be disturbed.
5. The name of the receiving water(s) (that is, the surface water(s) to which the site will discharge), or, if the discharge is through a storm sewer system, the name of the operator of the system.
6. The statement: “Any persons desiring to present their views to the Washington State Department of Ecology regarding this application, or interested in Ecology’s action on this application, may notify Ecology in writing no later than 30 days of the last date of publication of this notice. Ecology reviews public comments and considers whether discharges from this project would cause a measurable change in receiving water quality, and, if so, whether the project is necessary and in the overriding public interest according to Tier II antidegradation requirements under WAC 173-201A-320. Comments can be submitted to: Department of Ecology, PO Box 47696, Olympia, Washington 98504-7696 Attn: Water Quality Program, Construction Stormwater.”

### C. Erosivity Waiver

Construction site operators may qualify for an erosivity waiver from the CSWGP if the following conditions are met:

1. The site will result in the disturbance of fewer than 5 acres and the site is not a portion of a common plan of development or sale that will disturb 5 acres or greater.
2. Calculation of Erosivity “R” Factor and Regional Timeframe:
  - a. The project’s rainfall erosivity factor (“R” Factor) must be less than 5 during the period of construction activity, as calculated (see the CSWGP homepage <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html> for a link to the EPA’s calculator and step by step instructions on computing the “R” Factor in the EPA Erosivity Waiver Fact Sheet). The period of construction activity starts when the land is first disturbed and ends with final stabilization. In addition:
  - b. The entire period of construction activity must fall within the following timeframes:
    - i. For sites west of the Cascades Crest: June 15 – September 15.
    - ii. For sites east of the Cascades Crest, excluding the Central Basin: June 15 – October 15.
    - iii. For sites east of the Cascades Crest, within the Central Basin: no additional timeframe restrictions apply. The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches. For a map of the Central Basin (Average Annual Precipitation Region 2), refer to <http://www.ecy.wa.gov/programs/wq/stormwater/construction/resourcesguidance.html>.
3. Construction site operators must submit a complete Erosivity Waiver certification form at least one week before disturbing the land. Certification must include statements that the operator will:
  - a. Comply with applicable local stormwater requirements; **and**
  - b. Implement appropriate erosion and sediment control BMPs to prevent violations of water quality standards.
4. This waiver is not available for facilities declared significant contributors of pollutants as defined in Special Condition S1.B.1.b. or for any size construction activity that could reasonably expect to cause a violation of any water quality standard as defined in Special Condition S1.B.1.b.ii.
5. This waiver does not apply to construction activities which include non-stormwater discharges listed in Special Condition S1.C.3.

6. If construction activity extends beyond the certified waiver period for any reason, the operator must either:
  - a. Recalculate the rainfall erosivity “R” factor using the original start date and a new projected ending date and, if the “R” factor is still under 5 *and* the entire project falls within the applicable regional timeframe in Special Condition S2.C.2.b, complete and submit an amended waiver certification form before the original waiver expires; *or*
  - b. Submit a complete permit application to Ecology in accordance with Special Condition S2.A and B before the end of the certified waiver period.

### **S3. COMPLIANCE WITH STANDARDS**

- A. Discharges must not cause or contribute to a violation of surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (40 CFR Part 131.36). Discharges not in compliance with these standards are not authorized.
- B. Prior to the discharge of stormwater and non-stormwater to waters of the State, the Permittee must apply all known, available, and reasonable methods of prevention, control, and treatment (AKART). This includes the preparation and implementation of an adequate SWPPP, with all appropriate BMPs installed and maintained in accordance with the SWPPP and the terms and conditions of this permit.
- C. Ecology presumes that a Permittee complies with water quality standards unless discharge monitoring data or other site-specific information demonstrates that a discharge causes or contributes to a violation of water quality standards, when the Permittee complies with the following conditions. The Permittee must fully:
  1. Comply with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.
  2. Implement stormwater BMPs contained in stormwater management manuals published or approved by Ecology, or BMPs that are demonstrably equivalent to BMPs contained in stormwater technical manuals published or approved by Ecology, including the proper selection, implementation, and maintenance of all applicable and appropriate BMPs for on-site pollution control. (For purposes of this section, the stormwater manuals listed in Appendix 10 of the Phase I Municipal Stormwater Permit are approved by Ecology.)
- D. Where construction sites also discharge to ground water, the ground water discharges must also meet the terms and conditions of this CSWGP. Permittees who discharge to ground water through an injection well must also comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

#### **S4. MONITORING REQUIREMENTS, BENCHMARKS, AND REPORTING TRIGGERS**

##### **A. Site Log Book**

The Permittee must maintain a site log book that contains a record of the implementation of the SWPPP and other permit requirements, including the installation and maintenance of BMPs, site inspections, and stormwater monitoring.

##### **B. Site Inspections**

The Permittee's site inspections must include all areas disturbed by construction activities, all BMPs, and all stormwater discharge points under the Permittee's operational control. (See Special Conditions S4.B.3 and B.4 below for detailed requirements of the Permittee's Certified Erosion and Sediment Control Lead [CESCL].)

Construction sites one acre or larger that discharge stormwater to surface waters of the State must have site inspections conducted by a certified CESCL. Sites less than one acre may have a person without CESCL certification conduct inspections.

1. The Permittee must examine stormwater visually for the presence of suspended sediment, turbidity, discoloration, and oil sheen. The Permittee must evaluate the effectiveness of BMPs and determine if it is necessary to install, maintain, or repair BMPs to improve the quality of stormwater discharges.

Based on the results of the inspection, the Permittee must correct the problems identified by:

- a. Reviewing the SWPPP for compliance with Special Condition S9 and making appropriate revisions within 7 days of the inspection.
  - b. Immediately beginning the process of fully implementing and maintaining appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than within 10 days of the inspection. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.
  - c. Documenting BMP implementation and maintenance in the site log book.
2. The Permittee must inspect all areas disturbed by construction activities, all BMPs, and all stormwater discharge points at least once every calendar week and within 24 hours of any discharge from the site. (For purposes of this condition, individual discharge events that last more than one day do not require daily inspections. For example, if a stormwater pond discharges continuously over the course of a week, only one inspection is required that week.) The Permittee may reduce the inspection frequency for temporarily stabilized, inactive sites to once every calendar month.

3. The Permittee must have staff knowledgeable in the principles and practices of erosion and sediment control. The CESCL (sites one acre or more) or inspector (sites less than one acre) must have the skills to assess the:
  - a. Site conditions and construction activities that could impact the quality of stormwater, *and*
  - b. Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
4. The SWPPP must identify the CESCL or inspector, who must be present on site or on-call at all times. The CESCL must obtain this certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the manual referred to in Special Condition S9.C.1 and 2).
5. The Permittee must summarize the results of each inspection in an inspection report or checklist and enter the report/checklist into, or attach it to, the site log book. At a minimum, each inspection report or checklist must include:
  - a. Inspection date and time.
  - b. Weather information, the general conditions during inspection and the approximate amount of precipitation since the last inspection, and precipitation within the last 24 hours.
  - c. A summary or list of all implemented BMPs, including observations of all erosion/sediment control structures or practices.
  - d. A description of the locations:
    - i. Of BMPs inspected;
    - ii. Of BMPs that need maintenance and why;
    - iii. Of BMPs that failed to operate as designed or intended; *and*
    - iv. Where additional or different BMPs are needed, and why.
  - e. A description of stormwater discharged from the site. The Permittee must note the presence of suspended sediment, turbidity, discoloration, and oil sheen, as applicable.
  - f. Any water quality monitoring performed during inspection.
  - g. General comments and notes, including a brief description of any BMP repairs, maintenance or installations made following the inspection.
  - h. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.



- i. The name, title, and signature of the person conducting the site inspection, a phone number or other reliable method to reach this person, and the following statement: "I certify that this report is true, accurate, and complete to the best of my knowledge and belief."

**Table 3: Summary of Primary Monitoring Requirements**

<b>Size of Soil Disturbance<sup>1</sup></b>	<b>Weekly Site Inspections</b>	<b>Weekly Sampling w/ Turbidity Meter</b>	<b>Weekly Sampling w/ Transparency Tube</b>	<b>Weekly pH Sampling<sup>2</sup></b>	<b>CESCL Required for Inspections?</b>
Sites that disturb less than 1 acre, but are part of a larger Common Plan of Development	Required	Not Required	Not Required	Not Required	No
Sites that disturb 1 acre or more, but fewer than 5 acres	Required	Sampling Required – either method <sup>3</sup>		Required	Yes
Sites that disturb 5 acres or more	Required	Required	Not Required <sup>4</sup>	Required	Yes

<sup>1</sup> Soil disturbance is calculated by adding together all areas that will be affected by construction activity. Construction activity means clearing, grading, excavation, and any other activity that disturbs the surface of the land, including ingress/egress from the site.

<sup>2</sup> If construction activity results in the disturbance of 1 acre or more, and involves significant concrete work (1,000 cubic yards of poured over the life of a project) or the use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer stormwater collection system that drains to other surface waters of the State, the Permittee must conduct pH sampling in accordance with Special Condition S4.D.

<sup>3</sup> Sites with one or more acres, but fewer than 5 acres of soil disturbance, must conduct turbidity or transparency sampling in accordance with Special Condition S4.C.

<sup>4</sup> Sites equal to or greater than 5 acres of soil disturbance must conduct turbidity sampling using a turbidity meter in accordance with Special Condition S4.C.

## C. Turbidity/Transparency Sampling Requirements

### 1. Sampling Methods

- a. If construction activity involves the disturbance of 5 acres or more, the Permittee must conduct turbidity sampling per Special Condition S4.C.
- b. If construction activity involves 1 acre or more but fewer than 5 acres of soil disturbance, the Permittee must conduct either transparency sampling or turbidity sampling per Special Condition S4.C.

### 2. Sampling Frequency

- a. The Permittee must sample all discharge points at least once every calendar week when stormwater (or authorized non-stormwater) discharges from the site or enters any on-site surface waters of the state (for example, a creek running through a site); sampling is not required on sites that disturb less than an acre.
- b. Samples must be representative of the flow and characteristics of the discharge.
- c. Sampling is not required when there is no discharge during a calendar week.
- d. Sampling is not required outside of normal working hours or during unsafe conditions.
- e. If the Permittee is unable to sample during a monitoring period, the Permittee must include a brief explanation in the monthly Discharge Monitoring Report (DMR).
- f. Sampling is not required before construction activity begins.
- g. The Permittee may reduce the sampling frequency for temporarily stabilized, inactive sites to once every calendar month.

### 3. Sampling Locations

- a. Sampling is required at all points where stormwater associated with construction activity (or authorized non-stormwater) is discharged off site, including where it enters any on-site surface waters of the state (for example, a creek running through a site).
- b. The Permittee may discontinue sampling at discharge points that drain areas of the project that are fully stabilized to prevent erosion.
- c. The Permittee must identify all sampling point(s) on the SWPPP site map and clearly mark these points in the field with a flag, tape, stake or other visible marker.
- d. Sampling is not required for discharge that is sent directly to sanitary or combined sewer systems.

- e. The Permittee may discontinue sampling at discharge points in areas of the project where the Permittee no longer has operational control of the construction activity.

4. Sampling and Analysis Methods

- a. The Permittee performs turbidity analysis with a calibrated turbidity meter (turbidimeter) either on site or at an accredited lab. The Permittee must record the results in the site log book in nephelometric turbidity units (NTUs).
- b. The Permittee performs transparency analysis on site with a 1¾-inch-diameter, 60-centimeter (cm)-long transparency tube. The Permittee will record the results in the site log book in centimeters (cm).

**Table 4: Monitoring and Reporting Requirements**

<b>Parameter</b>	<b>Unit</b>	<b>Analytical Method</b>	<b>Sampling Frequency</b>	<b>Benchmark Value</b>	<b>Phone Reporting Trigger Value</b>
Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs	250 NTUs
Transparency	cm	Manufacturer instructions, or Ecology guidance	Weekly, if discharging	33 cm	6 cm

5. Turbidity/Transparency Benchmark Values and Reporting Triggers

The benchmark value for turbidity is 25 NTUs or less. The benchmark value for transparency is 33 centimeters (cm). Note: Benchmark values do not apply to discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus; these discharges are subject to a numeric effluent limit for turbidity. Refer to Special Condition S8 for more information.

- a. Turbidity 26 – 249 NTUs, or Transparency 32 – 7 cm:

If the discharge turbidity is 26 to 249 NTUs; or if discharge transparency is less than 33 cm, but equal to or greater than 6 cm, the Permittee must:

- i. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
- ii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.

- iii. Document BMP implementation and maintenance in the site log book.
- b. Turbidity 250 NTUs or greater, or Transparency 6 cm or less:

If a discharge point's turbidity is 250 NTUs or greater, or if discharge transparency is less than or equal to 6 cm, the Permittee must complete the reporting and adaptive management process described below.

- i. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) number (or through Ecology's Water Quality Permitting Portal [WQWebPortal] – Permit Submittals when the form is available) within 24 hours, in accordance with Special Condition S5.A.
- Central Region (Okanogan, Chelan, Douglas, Kittitas, Yakima, Klickitat, Benton): (509) 575-2490
  - Eastern Region (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
  - Northwest Region (Kitsap, Snohomish, Island, King, San Juan, Skagit, Whatcom): (425) 649-7000
  - Southwest Region (Grays Harbor, Lewis, Mason, Thurston, Pierce, Clark, Cowlitz, Skamania, Wahkiakum, Clallam, Jefferson, Pacific): (360) 407-6300

Links to these numbers and the ERTS reporting page are located on the following web site:  
<http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>.

- ii. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
- iii. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
- iv. Document BMP implementation and maintenance in the site log book.
- v. Sample discharges daily until:
- a) Turbidity is 25 NTUs (or lower); **or**
  - b) Transparency is 33 cm (or greater); **or**

- c) The Permittee has demonstrated compliance with the water quality limit for turbidity:
  - 1) No more than 5 NTUs over background turbidity, if background is less than 50 NTUs, *or*
  - 2) No more than 10% over background turbidity, if background is 50 NTUs or greater; *or*
- d) The discharge stops or is eliminated.

#### D. pH Sampling Requirements – Significant Concrete Work or Engineered Soils

If construction activity results in the disturbance of 1 acre or more, *and* involves significant concrete work (significant concrete work means greater than 1000 cubic yards poured concrete used over the life of a project ) or the use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD], or fly ash), and stormwater from the affected area drains to surface waters of the State or to a storm sewer system that drains to surface waters of the State, the Permittee must conduct pH sampling as set forth below. Note: In addition, discharges to segments of water bodies on Washington State's 303(d) list (Category 5) for high pH are subject to a numeric effluent limit for pH; refer to Special Condition S8.

1. For sites with significant concrete work, the Permittee must begin the pH sampling period when the concrete is first poured and exposed to precipitation, and continue weekly throughout and after the concrete pour and curing period, until stormwater pH is in the range of 6.5 to 8.5 (su).
2. For sites with recycled concrete, the Permittee must begin the weekly pH sampling period when the recycled concrete is first exposed to precipitation and must continue until the recycled concrete is fully stabilized and stormwater pH is in the range of 6.5 to 8.5 (su).
3. For sites with engineered soils, the Permittee must begin the pH sampling period when the soil amendments are first exposed to precipitation and must continue until the area of engineered soils is fully stabilized.
4. During the applicable pH monitoring period defined above, the Permittee must obtain a representative sample of stormwater and conduct pH analysis at least once per week.
5. The Permittee must sample pH in the sediment trap/pond(s) or other locations that receive stormwater runoff from the area of significant concrete work or engineered soils before the stormwater discharges to surface waters.
6. The benchmark value for pH is 8.5 standard units. Anytime sampling indicates that pH is 8.5 or greater, the Permittee must either:

- a. Prevent the high pH water (8.5 or above) from entering storm sewer systems or surface waters; *or*
  - b. If necessary, adjust or neutralize the high pH water until it is in the range of pH 6.5 to 8.5 (su) using an appropriate treatment BMP such as carbon dioxide (CO<sub>2</sub>) sparging or dry ice. The Permittee must obtain written approval from Ecology before using any form of chemical treatment other than CO<sub>2</sub> sparging or dry ice.
7. The Permittee must perform pH analysis on site with a calibrated pH meter, pH test kit, or wide range pH indicator paper. The Permittee must record pH sampling results in the site log book.

## **S5. REPORTING AND RECORDKEEPING REQUIREMENTS**

### **A. High Turbidity Reporting**

Anytime sampling performed in accordance with Special Condition S4.C indicates turbidity has reached the 250 NTUs or more (or transparency less than or equal to 6 cm) high turbidity reporting level, the Permittee must either call the applicable Ecology Region's Environmental Report Tracking System (ERTS) number by phone within 24 hours of analysis or submit an electronic ERTS report (or submit an electronic report through Ecology's Water Quality Permitting Portal (WQWebPortal) – Permit Submittals when the form is available). See the CSWGP web site for links to ERTS and the WQWebPortal: <http://www.ecy.wa.gov/programs/wq/stormwater/construction/index.html>. Also, see phone numbers in Special Condition S4.C.5.b.i.

### **B. Discharge Monitoring Reports (DMRs)**

Permittees required to conduct water quality sampling in accordance with Special Conditions S4.C (Turbidity/Transparency), S4.D (pH), S8 (303[d]/TMDL sampling), and/or G13 (Additional Sampling) must submit the results to Ecology.

Permittees must submit monitoring data using Ecology's WQWebDMR web application accessed through Ecology's Water Quality Permitting Portal. To find out more information and to sign up for WQWebDMR go to: <http://www.ecy.wa.gov/programs/wq/permits/paris/portal.html>.

Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper copy DMR at:

Department of Ecology  
Water Quality Program - Construction Stormwater  
PO Box 47696  
Olympia, Washington 98504-7696

Permittees who obtain a waiver not to use WQWebDMR must use the forms provided to them by Ecology; submittals must be mailed to the address above. Permittees shall

submit DMR forms to be received by Ecology within 15 days following the end of each month.

If there was no discharge during a given monitoring period, all Permittees must submit a DMR as required with "no discharge" entered in place of the monitoring results. DMRs are required for the full duration of permit coverage (from issuance date to termination). For more information, contact Ecology staff using information provided at the following web site: [www.ecy.wa.gov/programs/wq/permits/paris/contacts.html](http://www.ecy.wa.gov/programs/wq/permits/paris/contacts.html).

#### C. Records Retention

The Permittee must retain records of all monitoring information (site log book, sampling results, inspection reports/checklists, etc.), Stormwater Pollution Prevention Plan, copy of the permit coverage letter (including Transfer of Coverage documentation), and any other documentation of compliance with permit requirements for the entire life of the construction project and for a minimum of three years following the termination of permit coverage. Such information must include all calibration and maintenance records, and records of all data used to complete the application for this permit. This period of retention must be extended during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

#### D. Recording Results

For each measurement or sample taken, the Permittee must record the following information:

1. Date, place, method, and time of sampling or measurement.
2. The first and last name of the individual who performed the sampling or measurement.
3. The date(s) the analyses were performed.
4. The first and last name of the individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

#### E. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by this permit using test procedures specified by Special Condition S4 of this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Permittee's DMR.

#### F. Noncompliance Notification

In the event the Permittee is unable to comply with any part of the terms and conditions of this permit, and the resulting noncompliance may cause a threat to human health or the environment (such as but not limited to spills of fuels or other materials, catastrophic pond or slope failure, and discharges that violate water quality standards), or exceed

numeric effluent limitations (see S8. Discharges to 303(d) or TMDL Waterbodies), the Permittee must, upon becoming aware of the circumstance:

1. Notify Ecology within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (refer to Special Condition S4.C.5.b.i. or [www.ecy.wa.gov/programs/wq/stormwater/construction/turbidity.html](http://www.ecy.wa.gov/programs/wq/stormwater/construction/turbidity.html) for Regional ERTS phone numbers).
2. Immediately take action to prevent the discharge/pollution, or otherwise stop or correct the noncompliance, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to Ecology within five (5) days of becoming aware of the violation.
3. Submit a detailed written report to Ecology within five (5) days, of the time the Permittee becomes aware of the circumstances, unless requested earlier by Ecology. The report must be submitted using Ecology's Water Quality Permitting Portal (WQWebPortal) - Permit Submittals, unless a waiver from electronic reporting has been granted according to S5.B. The report must contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

The Permittee must report any unanticipated bypass and/or upset that exceeds any effluent limit in the permit in accordance with the 24-hour reporting requirement contained in 40 C.F.R. 122.41(l)(6).

Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply. Upon request of the Permittee, Ecology may waive the requirement for a written report on a case-by-case basis, if the immediate notification is received by Ecology within 24 hours.

#### G. Access to Plans and Records

1. The Permittee must retain the following permit documentation (plans and records) on site, or within reasonable access to the site, for use by the operator or for on-site review by Ecology or the local jurisdiction:
  - a. General Permit
  - b. Permit Coverage Letter
  - c. Stormwater Pollution Prevention Plan (SWPPP)
  - d. Site Log Book
2. The Permittee must address written requests for plans and records listed above (Special Condition S5.G.1) as follows:



- a. The Permittee must provide a copy of plans and records to Ecology within 14 days of receipt of a written request from Ecology.
- b. The Permittee must provide a copy of plans and records to the public when requested in writing. Upon receiving a written request from the public for the Permittee's plans and records, the Permittee must either:
  - i. Provide a copy of the plans and records to the requester within 14 days of a receipt of the written request; *or*
  - ii. Notify the requester within 10 days of receipt of the written request of the location and times within normal business hours when the plans and records may be viewed; and provide access to the plans and records within 14 days of receipt of the written request; *or*
  - iii. Within 14 days of receipt of the written request, the Permittee may submit a copy of the plans and records to Ecology for viewing and/or copying by the requester at an Ecology office, or a mutually agreed location. If plans and records are viewed and/or copied at a location other than at an Ecology office, the Permittee will provide reasonable access to copying services for which a reasonable fee may be charged. The Permittee must notify the requester within 10 days of receipt of the request where the plans and records may be viewed and/or copied.

#### **S6. PERMIT FEES**

The Permittee must pay permit fees assessed by Ecology. Fees for stormwater discharges covered under this permit are established by Chapter 173-224 WAC. Ecology continues to assess permit fees until the permit is terminated in accordance with Special Condition S10 or revoked in accordance with General Condition G5.

#### **S7. SOLID AND LIQUID WASTE DISPOSAL**

The Permittee must handle and dispose of solid and liquid wastes generated by construction activity, such as demolition debris, construction materials, contaminated materials, and waste materials from maintenance activities, including liquids and solids from cleaning catch basins and other stormwater facilities, in accordance with:

- A. Special Condition S3, Compliance with Standards
- B. WAC 173-216-110
- C. Other applicable regulations

#### **S8. DISCHARGES TO 303(d) OR TMDL WATERBODIES**

- A. Sampling and Numeric Effluent Limits For Certain Discharges to 303(d)-listed Waterbodies

1. Permittees who discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorus, must conduct water quality sampling according to the requirements of this section, and Special Conditions S4.C.2.b-f and S4.C.3.b-d, and must comply with the applicable numeric effluent limitations in S8.C and S8.D.
2. All references and requirements associated with Section 303(d) of the Clean Water Act mean the most current listing by Ecology of impaired waters (Category 5) that exists on January 1, 2016, or the date when the operator's complete permit application is received by Ecology, whichever is later.

**B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters**

Operators of construction sites that discharge to a TMDL or 303(d)-listed waterbody are not eligible for coverage under this permit *unless* the operator:

1. Prevents exposing stormwater to pollutants for which the waterbody is impaired, and retains documentation in the SWPPP that details procedures taken to prevent exposure on site; *or*
2. Documents that the pollutants for which the waterbody is impaired are not present at the site, and retains documentation of this finding within the SWPPP; *or*
3. Provides Ecology with data indicating the discharge is not expected to cause or contribute to an exceedance of a water quality standard, and retains such data on site with the SWPPP. The operator must provide data and other technical information to Ecology that sufficiently demonstrate:
  - a. For discharges to waters without an EPA-approved or -established TMDL, that the discharge of the pollutant for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; *or*
  - b. For discharges to waters with an EPA-approved or -established TMDL, that there is sufficient remaining wasteload allocation in the TMDL to allow construction stormwater discharge and that existing dischargers to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with water quality standards.

Operators of construction sites are eligible for coverage under this permit if Ecology issues permit coverage based upon an affirmative determination that the *discharge will not cause or contribute to the existing impairment.*

**C. Sampling and Numeric Effluent Limits for Discharges to Water Bodies on the 303(d) List for Turbidity, Fine Sediment, or Phosphorus**

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for turbidity, fine sediment, or phosphorus must conduct turbidity sampling in accordance with Special Condition S4.C.2 and comply with either of the numeric effluent limits noted in Table 5 below.

2. As an alternative to the 25 NTUs effluent limit noted in Table 5 below (applied at the point where stormwater [or authorized non-stormwater] is discharged off-site), Permittees may choose to comply with the surface water quality standard for turbidity. The standard is: no more than 5 NTUs over background turbidity when the background turbidity is 50 NTUs or less, or no more than a 10% increase in turbidity when the background turbidity is more than 50 NTUs. In order to use the water quality standard requirement, the sampling must take place at the following locations:
  - a. Background turbidity in the 303(d)-listed receiving water immediately upstream (upgradient) or outside the area of influence of the discharge.
  - b. Turbidity at the point of discharge into the 303(d)-listed receiving water, inside the area of influence of the discharge.
3. Discharges that exceed the numeric effluent limit for turbidity constitute a violation of this permit.
4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.

**Table 5: Turbidity, Fine Sediment & Phosphorus Sampling and Limits for 303(d)-Listed Waters**

Parameter Identified in 303(d) listing	Parameter Sampled	Unit	Analytical Method	Sampling Frequency	Numeric Effluent Limit <sup>1</sup>
<ul style="list-style-type: none"> <li>• Turbidity</li> <li>• Fine Sediment</li> <li>• Phosphorus</li> </ul>	Turbidity	NTU	SM2130	Weekly, if discharging	25 NTUs, at the point where stormwater is discharged from the site; OR In compliance with the surface water quality standard for turbidity (S8.C.2.a)

<sup>1</sup>Permittees subject to a numeric effluent limit for turbidity may, at their discretion, choose either numeric effluent limitation based on site-specific considerations including, but not limited to, safety, access and convenience.

#### D. Discharges to Water Bodies on the 303(d) List for High pH

1. Permittees who discharge to segments of water bodies on the 303(d) list (Category 5) for high pH must conduct pH sampling in accordance with the table below, and comply with the numeric effluent limit of pH 6.5 to 8.5 su (Table 6).

**Table 6: pH Sampling and Limits for 303(d)-Listed Waters**

<b>Parameter Identified in 303(d) listing</b>	<b>Parameter Sampled/Units</b>	<b>Analytical Method</b>	<b>Sampling Frequency</b>	<b>Numeric Effluent Limit</b>
High pH	pH /Standard Units	pH meter	Weekly, if discharging	In the range of 6.5 – 8.5

2. At the Permittee's discretion, compliance with the limit shall be assessed at one of the following locations:
    - a. Directly in the 303(d)-listed waterbody segment, inside the immediate area of influence of the discharge; or
    - b. Alternatively, the Permittee may measure pH at the point where the discharge leaves the construction site, rather than in the receiving water.
  3. Discharges that exceed the numeric effluent limit for pH (outside the range of 6.5 – 8.5 su) constitute a violation of this permit.
  4. Permittees whose discharges exceed the numeric effluent limit shall sample discharges daily until the violation is corrected and comply with the non-compliance notification requirements in Special Condition S5.F.
- E. Sampling and Limits for Sites Discharging to Waters Covered by a TMDL or Another Pollution Control Plan**
1. Discharges to a waterbody that is subject to a Total Maximum Daily Load (TMDL) for turbidity, fine sediment, high pH, or phosphorus must be consistent with the TMDL. Refer to <http://www.ecy.wa.gov/programs/wq/tmdl/TMDLsbyWria/TMDLbyWria.html> for more information on TMDLs.
    - a. Where an applicable TMDL sets specific waste load allocations or requirements for discharges covered by this permit, discharges must be consistent with any specific waste load allocations or requirements established by the applicable TMDL.
      - i. The Permittee must sample discharges weekly or as otherwise specified by the TMDL to evaluate compliance with the specific waste load allocations or requirements.
      - ii. Analytical methods used to meet the monitoring requirements must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136. Turbidity and pH methods need not be accredited or registered unless conducted at a laboratory which must otherwise be accredited or registered.
    - b. Where an applicable TMDL has established a general waste load allocation for construction stormwater discharges, but has not identified specific requirements,

compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.

- c. Where an applicable TMDL has not specified a waste load allocation for construction stormwater discharges, but has not excluded these discharges, compliance with Special Conditions S4 (Monitoring) and S9 (SWPPPs) will constitute compliance with the approved TMDL.
  - d. Where an applicable TMDL specifically precludes or prohibits discharges from construction activity, the operator is not eligible for coverage under this permit.
2. Applicable TMDL means a TMDL for turbidity, fine sediment, high pH, or phosphorus that is completed and approved by EPA before January 1, 2016, or before the date the operator's complete permit application is received by Ecology, whichever is later. TMDLs completed after the operator's complete permit application is received by Ecology become applicable to the Permittee only if they are imposed through an administrative order by Ecology, or through a modification of permit coverage.

## **S9. STORMWATER POLLUTION PREVENTION PLAN**

The Permittee must prepare and properly implement an adequate Stormwater Pollution Prevention Plan (SWPPP) for construction activity in accordance with the requirements of this permit beginning with initial soil disturbance and until final stabilization.

A. The Permittee's SWPPP must meet the following objectives:

- 1. To implement best management practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.
- 2. To prevent violations of surface water quality, ground water quality, or sediment management standards.
- 3. To control peak volumetric flow rates and velocities of stormwater discharges.

B. General Requirements

- 1. The SWPPP must include a narrative and drawings. All BMPs must be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative must include documentation to explain and justify the pollution prevention decisions made for the project. Documentation must include:
  - a. Information about existing site conditions (topography, drainage, soils, vegetation, etc.).
  - b. Potential erosion problem areas.
  - c. The 13 elements of a SWPPP in Special Condition S9.D.1-13, including BMPs used to address each element.

- d. Construction phasing/sequence and general BMP implementation schedule.
  - e. The actions to be taken if BMP performance goals are not achieved—for example, a contingency plan for additional treatment and/or storage of stormwater that would violate the water quality standards if discharged.
  - f. Engineering calculations for ponds, treatment systems, and any other designed structures.
2. The Permittee must modify the SWPPP if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The Permittee must then:
- a. Review the SWPPP for compliance with Special Condition S9 and make appropriate revisions within 7 days of the inspection or investigation.
  - b. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible, addressing the problems no later than 10 days from the inspection or investigation. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when an extension is requested by a Permittee within the initial 10-day response period.
  - c. Document BMP implementation and maintenance in the site log book.

The Permittee must modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

#### C. Stormwater Best Management Practices (BMPs)

BMPs must be consistent with:

- 1. Stormwater Management Manual for Western Washington (most current approved edition at the time this permit was issued), for sites west of the crest of the Cascade Mountains; *or*
- 2. Stormwater Management Manual for Eastern Washington (most current approved edition at the time this permit was issued), for sites east of the crest of the Cascade Mountains; *or*
- 3. Revisions to the manuals listed in Special Condition S9.C.1. & 2., or other stormwater management guidance documents or manuals which provide an equivalent level of pollution prevention, that are approved by Ecology and incorporated into this permit in accordance with the permit modification requirements of WAC 173-226-230; *or*

4. Documentation in the SWPPP that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable Stormwater Management Manuals, including:
  - a. The technical basis for the selection of all stormwater BMPs (scientific, technical studies, and/or modeling) that support the performance claims for the BMPs being selected.
  - b. An assessment of how the selected BMP will satisfy AKART requirements and the applicable federal technology-based treatment requirements under 40 CFR part 125.3.

D. SWPPP – Narrative Contents and Requirements

The Permittee must include each of the 13 elements below in Special Condition S9.D.1-13 in the narrative of the SWPPP and implement them unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the SWPPP.

1. Preserve Vegetation/Mark Clearing Limits
  - a. Before beginning land-disturbing activities, including clearing and grading, clearly mark all clearing limits, sensitive areas and their buffers, and trees that are to be preserved within the construction area.
  - b. Retain the duff layer, native topsoil, and natural vegetation in an undisturbed state to the maximum degree practicable.
2. Establish Construction Access
  - a. Limit construction vehicle access and exit to one route, if possible.
  - b. Stabilize access points with a pad of quarry spalls, crushed rock, or other equivalent BMPs, to minimize tracking sediment onto roads.
  - c. Locate wheel wash or tire baths on site, if the stabilized construction entrance is not effective in preventing tracking sediment onto roads.
  - d. If sediment is tracked off site, clean the affected roadway thoroughly at the end of each day, or more frequently as necessary (for example, during wet weather). Remove sediment from roads by shoveling, sweeping, or pickup and transport of the sediment to a controlled sediment disposal area.
  - e. Conduct street washing only after sediment removal in accordance with Special Condition S9.D.2.d. Control street wash wastewater by pumping back on site or otherwise preventing it from discharging into systems tributary to waters of the State.
3. Control Flow Rates
  - a. Protect properties and waterways downstream of development sites from erosion and the associated discharge of turbid waters due to increases in the

velocity and peak volumetric flow rate of stormwater runoff from the project site, as required by local plan approval authority.

- b. Where necessary to comply with Special Condition S9.D.3.a, construct stormwater retention or detention facilities as one of the first steps in grading. Assure that detention facilities function properly before constructing site improvements (for example, impervious surfaces).
- c. If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase.

#### 4. Install Sediment Controls

The Permittee must design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, the Permittee must design, install and maintain such controls to:

- a. Construct sediment control BMPs (sediment ponds, traps, filters, infiltration facilities, etc.) as one of the first steps in grading. These BMPs must be functional before other land disturbing activities take place.
- b. Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site.
- c. Direct stormwater runoff from disturbed areas through a sediment pond or other appropriate sediment removal BMP, before the runoff leaves a construction site or before discharge to an infiltration facility. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard of Special Condition S9.D.3.a.
- d. Locate BMPs intended to trap sediment on site in a manner to avoid interference with the movement of juvenile salmonids attempting to enter off-channel areas or drainages.
- e. Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible.
- f. Where feasible, design outlet structures that withdraw impounded stormwater from the surface to avoid discharging sediment that is still suspended lower in the water column.

#### 5. Stabilize Soils

- a. The Permittee must stabilize exposed and unworked soils by application of effective BMPs that prevent erosion. Applicable BMPs include, but are not limited to: temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide



(PAM), the early application of gravel base on areas to be paved, and dust control.

- b. The Permittee must control stormwater volume and velocity within the site to minimize soil erosion.
- c. The Permittee must control stormwater discharges, including both peak flow rates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and stream bank erosion.
- d. Depending on the geographic location of the project, the Permittee must not allow soils to remain exposed and unworked for more than the time periods set forth below to prevent erosion:

West of the Cascade Mountains Crest

During the dry season (May 1 - September 30): 7 days

During the wet season (October 1 - April 30): 2 days

East of the Cascade Mountains Crest, except for Central Basin\*

During the dry season (July 1 - September 30): 10 days

During the wet season (October 1 - June 30): 5 days

The Central Basin\*, East of the Cascade Mountains Crest

During the dry season (July 1 - September 30): 30 days

During the wet season (October 1 - June 30): 15 days

\*Note: The Central Basin is defined as the portions of Eastern Washington with mean annual precipitation of less than 12 inches.

- e. The Permittee must stabilize soils at the end of the shift before a holiday or weekend if needed based on the weather forecast.
- f. The Permittee must stabilize soil stockpiles from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.
- g. The Permittee must minimize the amount of soil exposed during construction activity.
- h. The Permittee must minimize the disturbance of steep slopes.
- i. The Permittee must minimize soil compaction and, unless infeasible, preserve topsoil.

## 6. Protect Slopes

- a. The Permittee must design and construct cut-and-fill slopes in a manner to minimize erosion. Applicable practices include, but are not limited to, reducing continuous length of slope with terracing and diversions, reducing slope steepness, and roughening slope surfaces (for example, track walking).

- b. The Permittee must divert off-site stormwater (run-on) or ground water away from slopes and disturbed areas with interceptor dikes, pipes, and/or swales. Off-site stormwater should be managed separately from stormwater generated on the site.
- c. At the top of slopes, collect drainage in pipe slope drains or protected channels to prevent erosion.
  - i. West of the Cascade Mountains Crest: Temporary pipe slope drains must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate predicted by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the Western Washington Hydrology Model (WWHM) to predict flows, bare soil areas should be modeled as "landscaped area."
  - ii. East of the Cascade Mountains Crest: Temporary pipe slope drains must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.
- d. Place excavated material on the uphill side of trenches, consistent with safety and space considerations.
- e. Place check dams at regular intervals within constructed channels that are cut down a slope.

#### 7. Protect Drain Inlets

- a. Protect all storm drain inlets made operable during construction so that stormwater runoff does not enter the conveyance system without first being filtered or treated to remove sediment.
- b. Clean or remove and replace inlet protection devices when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

#### 8. Stabilize Channels and Outlets

- a. Design, construct and stabilize all on-site conveyance channels to prevent erosion from the following expected peak flows:
  - i. West of the Cascade Mountains Crest: Channels must handle the peak 10-minute flow rate from a Type 1A, 10-year, 24-hour frequency storm for the developed condition. Alternatively, the 10-year, 1-hour flow rate indicated by an approved continuous runoff model, increased by a factor of 1.6, may be used. The hydrologic analysis must use the existing land

cover condition for predicting flow rates from tributary areas outside the project limits. For tributary areas on the project site, the analysis must use the temporary or permanent project land cover condition, whichever will produce the highest flow rates. If using the WWHM to predict flows, bare soil areas should be modeled as "landscaped area."

- ii. East of the Cascade Mountains Crest: Channels must handle the expected peak flow rate from a 6-month, 3-hour storm for the developed condition, referred to as the short duration storm.
- b. Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches at the outlets of all conveyance systems.

#### 9. Control Pollutants

Design, install, implement and maintain effective pollution prevention measures to minimize the discharge of pollutants. The Permittee must:

- a. Handle and dispose of all pollutants, including waste materials and demolition debris that occur on site in a manner that does not cause contamination of stormwater.
- b. Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. On-site fueling tanks must include secondary containment. Secondary containment means placing tanks or containers within an impervious structure capable of containing 110% of the volume contained in the largest tank within the containment structure. Double-walled tanks do not require additional secondary containment.
- c. Conduct maintenance, fueling, and repair of heavy equipment and vehicles using spill prevention and control measures. Clean contaminated surfaces immediately following any spill incident.
- d. Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with local sewer district approval.
- e. Apply fertilizers and pesticides in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Follow manufacturers' label requirements for application rates and procedures.
- f. Use BMPs to prevent contamination of stormwater runoff by pH-modifying sources. The sources for this contamination include, but are not limited to: bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, recycled concrete stockpiles, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete

pumping and mixer washout waters. (Also refer to the definition for "concrete wastewater" in Appendix A--Definitions.)

- g. Adjust the pH of stormwater or authorized non-stormwater if necessary to prevent an exceedance of groundwater and/or surface water quality standards.
- h. Assure that washout of concrete trucks is performed off-site or in designated concrete washout areas only. Do not wash out concrete trucks or concrete handling equipment onto the ground, or into storm drains, open ditches, streets, or streams. Do not dump excess concrete on site, except in designated concrete washout areas. Concrete spillage or concrete discharge to surface waters of the State is prohibited.
- i. Obtain written approval from Ecology before using any chemical treatment, with the exception of CO<sub>2</sub> or dry ice used to adjust pH.
- j. Uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations may be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters. Prior to infiltration, water from water-only based shaft drilling that comes into contact with curing concrete must be neutralized until pH is in the range of 6.5 to 8.5 (su).

#### 10. Control Dewatering

- a. Permittees must discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap or sediment pond.
- b. Permittees may discharge clean, non-turbid dewatering water, such as well-point ground water, to systems tributary to, or directly into surface waters of the State, as specified in Special Condition S9.D.8, provided the dewatering flow does not cause erosion or flooding of receiving waters. Do not route clean dewatering water through stormwater sediment ponds. Note that "surface waters of the State" may exist on a construction site as well as off site; for example, a creek running through a site.
- c. Other dewatering treatment or disposal options may include:
  - i. Infiltration.
  - ii. Transport off site in a vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters.
  - iii. Ecology-approved on-site chemical treatment or other suitable treatment technologies (see S9.D.9.i. regarding chemical treatment written approval).
  - iv. Sanitary or combined sewer discharge with local sewer district approval, if there is no other option.

v. Use of a sedimentation bag with discharge to a ditch or swale for small volumes of localized dewatering.

d. Permittees must handle highly turbid or contaminated dewatering water separately from stormwater.

11. Maintain BMPs

a. Permittees must maintain and repair all temporary and permanent erosion and sediment control BMPs as needed to assure continued performance of their intended function in accordance with BMP specifications.

b. Permittees must remove all temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after the temporary BMPs are no longer needed.

12. Manage the Project

a. Phase development projects to the maximum degree practicable and take into account seasonal work limitations.

b. Inspection and monitoring – Inspect, maintain and repair all BMPs as needed to assure continued performance of their intended function. Conduct site inspections and monitoring in accordance with Special Condition S4.

c. Maintaining an updated construction SWPPP – Maintain, update, and implement the SWPPP in accordance with Special Conditions S3, S4 and S9.

13. Protect Low Impact Development (LID) BMPs

The primary purpose of LID BMPs/On-site LID Stormwater Management BMPs is to reduce the disruption of the natural site hydrology. LID BMPs are permanent facilities.

a. Permittees must protect all Bioretention and Rain Garden facilities from sedimentation through installation and maintenance of erosion and sediment control BMPs on portions of the site that drain into the Bioretention and/or Rain Garden facilities. Restore the facilities to their fully functioning condition if they accumulate sediment during construction. Restoring the facility must include removal of sediment and any sediment-laden Bioretention/Rain Garden soils, and replacing the removed soils with soils meeting the design specification.

b. Permittees must maintain the infiltration capabilities of Bioretention and Rain Garden facilities by protecting against compaction by construction equipment and foot traffic. Protect completed lawn and landscaped areas from compaction due to construction equipment.

c. Permittees must control erosion and avoid introducing sediment from surrounding land uses onto permeable pavements. Do not allow muddy

construction equipment on the base material or pavement. Do not allow sediment-laden runoff onto permeable pavements.

- d. Permittees must clean permeable pavements fouled with sediments or no longer passing an initial infiltration test using local stormwater manual methodology or the manufacturer's procedures.
- e. Permittees must keep all heavy equipment off existing soils under LID facilities that have been excavated to final grade to retain the infiltration rate of the soils.

#### E. SWPPP – Map Contents and Requirements

The Permittee's SWPPP must also include a vicinity map or general location map (for example, a USGS quadrangle map, a portion of a county or city map, or other appropriate map) with enough detail to identify the location of the construction site and receiving waters within one mile of the site.

The SWPPP must also include a legible site map (or maps) showing the entire construction site. The following features must be identified, unless not applicable due to site conditions:

1. The direction of north, property lines, and existing structures and roads.
2. Cut and fill slopes indicating the top and bottom of slope catch lines.
3. Approximate slopes, contours, and direction of stormwater flow before and after major grading activities.
4. Areas of soil disturbance and areas that will not be disturbed.
5. Locations of structural and nonstructural controls (BMPs) identified in the SWPPP.
6. Locations of off-site material, stockpiles, waste storage, borrow areas, and vehicle/equipment storage areas.
7. Locations of all surface water bodies, including wetlands.
8. Locations where stormwater or non-stormwater discharges off-site and/or to a surface waterbody, including wetlands.
9. Location of water quality sampling station(s), if sampling is required by state or local permitting authority.
10. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.
11. Location or proposed location of LID facilities.

## **S10. NOTICE OF TERMINATION**

- A. The site is eligible for termination of coverage when it has met any of the following conditions:
1. The site has undergone final stabilization, the Permittee has removed all temporary BMPs (except biodegradable BMPs clearly manufactured with the intention for the material to be left in place and not interfere with maintenance or land use), and all stormwater discharges associated with construction activity have been eliminated; *or*
  2. All portions of the site that have not undergone final stabilization per Special Condition S10.A.1 have been sold and/or transferred (per General Condition G9), and the Permittee no longer has operational control of the construction activity; *or*
  3. For residential construction only, the Permittee has completed temporary stabilization and the homeowners have taken possession of the residences.
- B. When the site is eligible for termination, the Permittee must submit a complete and accurate Notice of Termination (NOT) form, signed in accordance with General Condition G2, to:

Department of Ecology  
Water Quality Program – Construction Stormwater  
PO Box 47696  
Olympia, Washington 98504-7696

When an electronic termination form is available, the Permittee may choose to submit a complete and accurate Notice of Termination (NOT) form through the Water Quality Permitting Portal rather than mailing a hardcopy as noted above.

The termination is effective on the thirty-first calendar day following the date Ecology receives a complete NOT form, unless Ecology notifies the Permittee that the termination request is denied because the Permittee has not met the eligibility requirements in Special Condition S10.A.

Permittees are required to comply with all conditions and effluent limitations in the permit until the permit has been terminated.

Permittees transferring the property to a new property owner or operator/Permittee are required to complete and submit the Notice of Transfer form to Ecology, but are not required to submit a Notice of Termination form for this type of transaction.

## **GENERAL CONDITIONS**

### **G1. DISCHARGE VIOLATIONS**

All discharges and activities authorized by this general permit must be consistent with the terms and conditions of this general permit. Any discharge of any pollutant more frequent than or at a level in excess of that identified and authorized by the general permit must constitute a violation of the terms and conditions of this permit.

### **G2. SIGNATORY REQUIREMENTS**

A. All permit applications must bear a certification of correctness to be signed:

1. In the case of corporations, by a responsible corporate officer;
2. In the case of a partnership, by a general partner of a partnership;
3. In the case of sole proprietorship, by the proprietor; *or*
4. In the case of a municipal, state, or other public facility, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by Ecology (including NOIs, NOTs, and Transfer of Coverage forms) must be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph G2.B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my



knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

### **G3. RIGHT OF INSPECTION AND ENTRY**

The Permittee must allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

- A. To enter upon the premises where a discharge is located or where any records are kept under the terms and conditions of this permit.
- B. To have access to and copy – at reasonable times and at reasonable cost – any records required to be kept under the terms and conditions of this permit.
- C. To inspect – at reasonable times – any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.
- D. To sample or monitor – at reasonable times – any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

### **G4. GENERAL PERMIT MODIFICATION AND REVOCATION**

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

- A. When a change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this permit.
- B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of dischargers covered under this permit.
- C. When a water quality management plan containing requirements applicable to the category of dischargers covered under this permit is approved, *or*
- D. When information is obtained that indicates cumulative effects on the environment from dischargers covered under this permit are unacceptable.

### **G5. REVOCATION OF COVERAGE UNDER THE PERMIT**

Pursuant to Chapter 43.21B RCW and Chapter 173-226 WAC, the Director may terminate coverage for any discharger under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

- A. Violation of any term or condition of this permit.
- B. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.

- C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.
- D. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
- E. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations.
- F. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.
- G. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

The Director may require any discharger under this permit to apply for and obtain coverage under an individual permit or another more specific general permit. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within ninety (90) days from the time of revocation and is submitted along with a complete individual permit application form.

#### **G6. REPORTING A CAUSE FOR MODIFICATION**

The Permittee must submit a new application, or a supplement to the previous application, whenever a material change to the construction activity or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application must be submitted at least sixty (60) days prior to any proposed changes. Filing a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

#### **G7. COMPLIANCE WITH OTHER LAWS AND STATUTES**

Nothing in this permit will be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

#### **G8. DUTY TO REAPPLY**

The Permittee must apply for permit renewal at least 180 days prior to the specified expiration date of this permit. The Permittee must reapply using the electronic application form (NOI) available on Ecology's website. Permittees unable to submit electronically (for example, those who do not have an internet connection) must contact Ecology to request a waiver and obtain instructions on how to obtain a paper NOI.

Department of Ecology  
Water Quality Program - Construction Stormwater  
PO Box 47696  
Olympia, Washington 98504-7696

#### **G9. TRANSFER OF GENERAL PERMIT COVERAGE**

Coverage under this general permit is automatically transferred to a new discharger, including operators of lots/parcels within a common plan of development or sale, if:

- A. A written agreement (Transfer of Coverage Form) between the current discharger (Permittee) and new discharger, signed by both parties and containing a specific date for transfer of permit responsibility, coverage, and liability (including any Administrative Orders associated with the Permit) is submitted to the Director; and
- B. The Director does not notify the current discharger and new discharger of the Director's intent to revoke coverage under the general permit. If this notice is not given, the transfer is effective on the date specified in the written agreement.

When a current discharger (Permittee) transfers a portion of a permitted site, the current discharger must also submit an updated application form (NOI) to the Director indicating the remaining permitted acreage after the transfer.

#### **G10. REMOVED SUBSTANCES**

The Permittee must not re-suspend or reintroduce collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to the final effluent stream for discharge to state waters.

#### **G11. DUTY TO PROVIDE INFORMATION**

The Permittee must submit to Ecology, within a reasonable time, all information that Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee must also submit to Ecology, upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

#### **G12. OTHER REQUIREMENTS OF 40 CFR**

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

#### **G13. ADDITIONAL MONITORING**

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

#### **G14. PENALTIES FOR VIOLATING PERMIT CONDITIONS**

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment at the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

#### **G15. UPSET**

Definition – “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Special Condition S5.F, and; 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

#### **G16. PROPERTY RIGHTS**

This permit does not convey any property rights of any sort, or any exclusive privilege.

#### **G17. DUTY TO COMPLY**

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

#### **G18. TOXIC POLLUTANTS**

The Permittee must comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

## **G19. PENALTIES FOR TAMPERING**

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this condition, punishment shall be a fine of not more than \$20,000 per day of violation, or imprisonment of not more than four (4) years, or both.

## **G20. REPORTING PLANNED CHANGES**

The Permittee must, as soon as possible, give notice to Ecology of planned physical alterations, modifications or additions to the permitted construction activity. The Permittee should be aware that, depending on the nature and size of the changes to the original permit, a new public notice and other permit process requirements may be required. Changes in activities that require reporting to Ecology include those that will result in:

- A. The permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b).
- B. A significant change in the nature or an increase in quantity of pollutants discharged, including but not limited to: for sites 5 acres or larger, a 20% or greater increase in acreage disturbed by construction activity.
- C. A change in or addition of surface water(s) receiving stormwater or non-stormwater from the construction activity.
- D. A change in the construction plans and/or activity that affects the Permittee's monitoring requirements in Special Condition S4.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation.

## **G21. REPORTING OTHER INFORMATION**

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to Ecology, it must promptly submit such facts or information.

## **G22. REPORTING ANTICIPATED NON-COMPLIANCE**

The Permittee must give advance notice to Ecology by submission of a new application or supplement thereto at least forty-five (45) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate

unavoidable interruption of operation and degradation of effluent quality, must be scheduled during non-critical water quality periods and carried out in a manner approved by Ecology.

#### **G23. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT**

Any discharger authorized by this permit may request to be excluded from coverage under the general permit by applying for an individual permit. The discharger must submit to the Director an application as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons will fully document how an individual permit will apply to the applicant in a way that the general permit cannot. Ecology may make specific requests for information to support the request. The Director will either issue an individual permit or deny the request with a statement explaining the reason for the denial. When an individual permit is issued to a discharger otherwise subject to the construction stormwater general permit, the applicability of the construction stormwater general permit to that Permittee is automatically terminated on the effective date of the individual permit.

#### **G24. APPEALS**

- A. The terms and conditions of this general permit, as they apply to the appropriate class of dischargers, are subject to appeal by any person within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.
- B. The terms and conditions of this general permit, as they apply to an individual discharger, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or nonapplicability to that individual discharger.
- C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.

#### **G25. SEVERABILITY**

The provisions of this permit are severable, and if any provision of this permit, or application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

#### **G26. BYPASS PROHIBITED**

##### **A. Bypass Procedures**

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited for stormwater events below the design criteria for

stormwater management. Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, 3 or 4) is applicable.

1. Bypass of stormwater is consistent with the design criteria and part of an approved management practice in the applicable stormwater management manual.
2. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health.

3. Bypass of stormwater is unavoidable, unanticipated, and results in noncompliance of this permit.

This bypass is permitted only if:

- a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.
  - b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.
  - c. Ecology is properly notified of the bypass as required in Special Condition S5.F of this permit.
4. A planned action that would cause bypass of stormwater and has the potential to result in noncompliance of this permit during a storm event.

The Permittee must notify Ecology at least thirty (30) days before the planned date of bypass. The notice must contain:

- a. A description of the bypass and its cause.
- b. An analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing.
- c. A cost-effectiveness analysis of alternatives including comparative resource damage assessment.
- d. The minimum and maximum duration of bypass under each alternative.
- e. A recommendation as to the preferred alternative for conducting the bypass.

- f. The projected date of bypass initiation.
  - g. A statement of compliance with SEPA.
  - h. A request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated.
  - i. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.
5. For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the Stormwater Pollution Prevention Plan (SWPPP) and must be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following before issuing an administrative order for this type bypass:

- a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
- b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.
- c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve, conditionally approve, or deny the request. The public must be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under RCW 90.48.120.

#### B. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.



## APPENDIX A – DEFINITIONS

**AKART** is an acronym for “all known, available, and reasonable methods of prevention, control, and treatment.” AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the *pollutants* and controlling pollution associated with a discharge.

**Applicable TMDL** means a TMDL for turbidity, fine sediment, high pH, or phosphorus, which was completed and approved by EPA before January 1, 2016, or before the date the operator’s complete permit application is received by Ecology, whichever is later.

**Applicant** means an *operator* seeking coverage under this permit.

**Benchmark** means a *pollutant* concentration used as a permit threshold, below which a *pollutant* is considered unlikely to cause a water quality violation, and above which it may. When *pollutant* concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not water quality standards and are not numeric effluent limitations; they are indicator values.

**Best Management Practices (BMPs)** means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: *stormwater* associated with construction activity, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Buffer** means an area designated by a local *jurisdiction* that is contiguous to and intended to protect a sensitive area.

**Bypass** means the intentional diversion of waste streams from any portion of a treatment facility.

**Calendar Day** A period of 24 consecutive hours starting at 12:00 midnight and ending the following 12:00 midnight.

**Calendar Week** (same as **Week**) means a period of seven consecutive days starting at 12:01 a.m. (0:01 hours) on Sunday.

**Certified Erosion and Sediment Control Lead (CESCL)** means a person who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by Ecology (see BMP C160 in the SWMM).

**Chemical Treatment** means the addition of chemicals to *stormwater* and/or authorized non-stormwater prior to filtration and discharge to surface waters.

**Clean Water Act (CWA)** means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

**Combined Sewer** means a sewer which has been designed to serve as a sanitary sewer and a storm sewer, and into which inflow is allowed by local ordinance.

**Common Plan of Development or Sale** means a site where multiple separate and distinct *construction activities* may be taking place at different times on different schedules and/or by different contractors, but still under a single plan. Examples include: 1) phased projects and projects with multiple filings or lots, even if the separate phases or filings/lots will be constructed under separate contract or by separate owners (e.g., a development where lots are sold to separate builders); 2) a development plan that may be phased over multiple years, but is still under a consistent plan for long-term development; 3) projects in a contiguous area that may be unrelated but still under the same contract, such as construction of a building extension and a new parking lot at the same facility; and 4) linear projects such as roads, pipelines, or utilities. If the project is part of a common plan of development or sale, the disturbed area of the entire plan must be used in determining permit requirements.

**Composite Sample** means a mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increases while maintaining a constant time interval between the aliquots).

**Concrete Wastewater** means any water used in the production, pouring and/or clean-up of concrete or concrete products, and any water used to cut, grind, wash, or otherwise modify concrete or concrete products. Examples include water used for or resulting from concrete truck/mixer/pumper/tool/chute rinsing or washing, concrete saw cutting and surfacing (sawing, coring, grinding, roughening, hydro-demolition, bridge and road surfacing). When *stormwater* comingles with concrete wastewater, the resulting water is considered concrete wastewater and must be managed to prevent discharge to *waters of the State*, including *ground water*.

**Construction Activity** means land disturbing operations including clearing, grading or excavation which disturbs the surface of the land. Such activities may include road construction, construction of residential houses, office buildings, or industrial buildings, site preparation, soil compaction, movement and stockpiling of topsoils, and demolition activity.

**Contaminant** means any hazardous substance that does not occur naturally or occurs at greater than natural background levels. See definition of "*hazardous substance*" and WAC 173-340-200.

**Contaminated Groundwater** means groundwater which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

**Contaminated Soil** means soil which contains *contaminants*, *pollutants*, or *hazardous substances* that do not occur naturally or occur at levels greater than natural background.

**Demonstrably Equivalent** means that the technical basis for the selection of all stormwater BMPs is documented within a SWPPP, including:

1. The method and reasons for choosing the stormwater BMPs selected.

2. The *pollutant* removal performance expected from the BMPs selected.
3. The technical basis supporting the performance claims for the BMPs selected, including any available data concerning field performance of the BMPs selected.
4. An assessment of how the selected BMPs will comply with state water quality standards.
5. An assessment of how the selected BMPs will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment (AKART).

**Department** means the Washington State Department of Ecology.

**Detention** means the temporary storage of *stormwater* to improve quality and/or to reduce the mass flow rate of discharge.

**Dewatering** means the act of pumping *ground water* or *stormwater* away from an active construction site.

**Director** means the Director of the Washington State Department of Ecology or his/her authorized representative.

**Discharger** means an owner or *operator* of any facility or activity subject to regulation under Chapter 90.48 RCW or the Federal Clean Water Act.

**Domestic Wastewater** means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration or surface waters as may be present.

**Ecology** means the Washington State Department of Ecology.

**Engineered Soils** means the use of soil amendments including, but not limited, to Portland cement treated base (CTB), cement kiln dust (CKD), or fly ash to achieve certain desirable soil characteristics.

**Equivalent BMPs** means operational, source control, treatment, or innovative BMPs which result in equal or better quality of stormwater discharge to *surface water* or to *ground water* than BMPs selected from the SWMM.

**Erosion** means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

**Erosion and Sediment Control BMPs** means BMPs intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, sediment traps, and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

**Federal Operator** is an entity that meets the definition of “*Operator*” in this permit and is either any department, agency or instrumentality of the executive, legislative, and judicial branches of

the Federal government of the United States, or another entity, such as a private contractor, performing construction activity for any such department, agency, or instrumentality.

**Final Stabilization** (same as **fully stabilized** or **full stabilization**) means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (examples of permanent non-vegetative stabilization methods include, but are not limited to riprap, gabions or geotextiles) which prevents erosion.

**Ground Water** means water in a saturated zone or stratum beneath the land surface or a surface waterbody.

**Hazardous Substance** means any dangerous or extremely hazardous waste as defined in RCW 70.105.010 (5) and (6), or any dangerous or extremely dangerous waste as designated by rule under chapter 70.105 RCW; any hazardous substance as defined in RCW 70.105.010(10) or any hazardous substance as defined by rule under chapter 70.105 RCW; any substance that, on the effective date of this section, is a hazardous substance under section 101(14) of the federal cleanup law, 42 U.S.C., Sec. 9601(14); petroleum or petroleum products; and any substance or category of substances, including solid waste decomposition products, determined by the director by rule to present a threat to human health or the environment if released into the environment. The term hazardous substance does not include any of the following when contained in an underground storage tank from which there is not a release: crude oil or any fraction thereof or petroleum, if the tank is in compliance with all applicable federal, state, and local law.

**Injection Well** means a well that is used for the subsurface emplacement of fluids. (See Well.)

**Jurisdiction** means a political unit such as a city, town or county; incorporated for local self-government.

**National Pollutant Discharge Elimination System (NPDES)** means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of *pollutants* to surface waters of the State from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

**Notice of Intent (NOI)** means the application for, or a request for coverage under this general permit pursuant to WAC 173-226-200.

**Notice of Termination (NOT)** means a request for termination of coverage under this general permit as specified by Special Condition S10 of this permit.

**Operator** means any party associated with a construction project that meets either of the following two criteria:

- The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

- The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a SWPPP for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

**Permittee** means individual or entity that receives notice of coverage under this general permit.

**pH** means a liquid's measure of acidity or alkalinity. A pH of 7 is defined as neutral. Large variations above or below this value are considered harmful to most aquatic life.

**pH Monitoring Period** means the time period in which the pH of *stormwater* runoff from a site must be tested a minimum of once every seven days to determine if *stormwater* pH is between 6.5 and 8.5.

**Point Source** means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which *pollutants* are or may be discharged to surface waters of the State. This term does not include return flows from irrigated agriculture. (See Fact Sheet for further explanation.)

**Pollutant** means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the CWA, nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the CWA.

**Pollution** means contamination or other alteration of the physical, chemical, or biological properties of waters of the State; including change in temperature, taste, color, turbidity, or odor of the waters; or such discharge of any liquid, gaseous, solid, radioactive or other substance into any *waters of the State* as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish or other aquatic life.

**Process Wastewater** means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. If *stormwater* commingles with process wastewater, the commingled water is considered process wastewater.

**Receiving Water** means the waterbody at the point of discharge. If the discharge is to a *storm sewer system*, either surface or subsurface, the receiving water is the waterbody to which the storm system discharges. Systems designed primarily for other purposes such as for ground water drainage, redirecting stream natural flows, or for conveyance of irrigation water/return flows that coincidentally convey *stormwater* are considered the receiving water.

**Representative** means a *stormwater* or wastewater sample which represents the flow and characteristics of the discharge. Representative samples may be a grab sample, a time-proportionate *composite sample*, or a flow proportionate sample. Ecology's Construction Stormwater Monitoring Manual provides guidance on representative sampling.

**Responsible Corporate Officer** for the purpose of signatory authority means: (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

**Sanitary Sewer** means a sewer which is designed to convey domestic wastewater.

**Sediment** means the fragmented material that originates from the weathering and erosion of rocks or unconsolidated deposits, and is transported by, suspended in, or deposited by water.

**Sedimentation** means the depositing or formation of sediment.

**Sensitive Area** means a waterbody, wetland, stream, aquifer recharge area, or channel migration zone.

**SEPA** (State Environmental Policy Act) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

**Significant Amount** means an amount of a *pollutant* in a discharge that is amenable to available and reasonable methods of prevention or treatment; or an amount of a *pollutant* that has a reasonable potential to cause a violation of surface or ground water quality or sediment management standards.

**Significant Concrete Work** means greater than 1000 cubic yards poured concrete used over the life of a project.

**Significant Contributor of Pollutants** means a facility determined by Ecology to be a contributor of a significant amount(s) of a *pollutant*(s) to waters of the State of Washington.

**Site** means the land or water area where any "facility or activity" is physically located or conducted.

**Source Control BMPs** means physical, structural or mechanical devices or facilities that are intended to prevent *pollutants* from entering *stormwater*. A few examples of source control

BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the *sanitary sewer* or a dead end sump.

**Stabilization** means the application of appropriate BMPs to prevent the erosion of soils, such as, temporary and permanent seeding, vegetative covers, mulching and matting, plastic covering and sodding. See also the definition of Erosion and Sediment Control BMPs.

**Storm Drain** means any drain which drains directly into a *storm sewer system*, usually found along roadways or in parking lots.

**Storm Sewer System** means a means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains designed or used for collecting or conveying *stormwater*. This does not include systems which are part of a *combined sewer* or Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**Stormwater** means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface waterbody, or a constructed infiltration facility.

**Stormwater Management Manual (SWMM) or Manual** means the technical Manual published by Ecology for use by local governments that contain descriptions of and design criteria for BMPs to prevent, control, or treat *pollutants in stormwater*.

**Stormwater Pollution Prevention Plan (SWPPP)** means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of *stormwater*.

**Surface Waters of the State** includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the State of Washington.

**Temporary Stabilization** means the exposed ground surface has been covered with appropriate materials to provide temporary stabilization of the surface from water or wind erosion. Materials include, but are not limited to, mulch, riprap, erosion control mats or blankets and temporary cover crops. Seeding alone is not considered stabilization. Temporary stabilization is not a substitute for the more permanent "*final stabilization*."

**Total Maximum Daily Load (TMDL)** means a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single *pollutant* from all contributing point and nonpoint sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the *pollutant*. The calculation must also account for seasonable variation in water quality.

**Transfer of Coverage (TOC)** means a request for transfer of coverage under this general permit as specified by General Condition G9 of this permit.

**Treatment BMPs** means BMPs that are intended to remove *pollutants* from *stormwater*. A few examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

**Transparency** means a measurement of water clarity in centimeters (cm), using a 60 cm transparency tube. The transparency tube is used to estimate the relative clarity or transparency of water by noting the depth at which a black and white Secchi disc becomes visible when water is released from a value in the bottom of the tube. A transparency tube is sometimes referred to as a "turbidity tube."

**Turbidity** means the clarity of water expressed as nephelometric turbidity units (NTUs) and measured with a calibrated turbidimeter.

**Uncontaminated** means free from any contaminant. See definition of "*contaminant*" and WAC 173-340-200.

**Waste Load Allocation (WLA)** means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality based effluent limitation (40 CFR 130.2[h]).

**Water-only Based Shaft Drilling** is a shaft drilling process that uses water only and no additives are involved in the drilling of shafts for construction of building, road, or bridge foundations.

**Water quality** means the chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

**Waters of the State** includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the State" as defined in Chapter 90.48 RCW, which include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

**Well** means a bored, drilled or driven shaft, or dug hole whose depth is greater than the largest surface dimension. (See Injection well.)

**Wheel Wash Wastewater** means any water used in, or resulting from the operation of, a tire bath or wheel wash (BMP C106: Wheel Wash), or other structure or practice that uses water to physically remove mud and debris from vehicles leaving a construction site and prevent track-out onto roads. When *stormwater* comes in contact with wheel wash wastewater, the resulting water is considered wheel wash wastewater and must be managed according to Special Condition S9.D.9.



## APPENDIX B – ACRONYMS

<b>AKART</b>	All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment
<b>BMP</b>	Best Management Practice
<b>CESCL</b>	Certified Erosion and Sediment Control Lead
<b>CFR</b>	Code of Federal Regulations
<b>CKD</b>	Cement Kiln Dust
<b>cm</b>	Centimeters
<b>CTB</b>	Cement-Treated Base
<b>CWA</b>	Clean Water Act
<b>DMR</b>	Discharge Monitoring Report
<b>EPA</b>	Environmental Protection Agency
<b>ERTS</b>	Environmental Report Tracking System
<b>ESC</b>	Erosion and Sediment Control
<b>FR</b>	Federal Register
<b>LID</b>	Low Impact Development
<b>NOI</b>	Notice of Intent
<b>NOT</b>	Notice of Termination
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>NTU</b>	Nephelometric Turbidity Unit
<b>RCW</b>	Revised Code of Washington
<b>SEPA</b>	State Environmental Policy Act
<b>SWMM</b>	Stormwater Management Manual
<b>SWPPP</b>	Stormwater Pollution Prevention Plan
<b>TMDL</b>	Total Maximum Daily Load
<b>UIC</b>	Underground Injection Control
<b>USC</b>	United States Code
<b>USEPA</b>	United States Environmental Protection Agency
<b>WAC</b>	Washington Administrative Code
<b>WQ</b>	Water Quality
<b>WWHM</b>	Western Washington Hydrology Model

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## **Fact Sheet for NPDES Permit WA0031682**

### **City of Seattle's Combined Sewer System**

February 18, 2016

#### **Purpose of this fact sheet**

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for the City of Seattle's (Seattle) Combined Sewer System (CSS) and associated Combined Sewer Overflow (CSO) outfalls, operated under the authority of Seattle Public Utilities (SPU).

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for the City of Seattle's CSS permit, NPDES permit WA0031682, are available for public review and comment from February 18, 2016 until March 21, 2016. For more details on preparing and filing comments about these documents, please see *Appendix A - Public Involvement Information*.

SPU's staff reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility locations, history, wastewater discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as *Appendix E - Response to Comments*, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

#### **Summary**

SPU owns and operates sewage collection systems designed to carry combined flows of sanitary sewage and stormwater runoff in a common piping system. Overflows may occur at designated outfalls during wet weather events when the volume of sewage and stormwater entering the combined sewer system exceeds the system's capacity. Seattle's CSS includes 86 CSO outfalls that may discharge combined sewage during precipitation events.

Chapter 173-245 WAC and EPA's CSO control policy (59 FR 18688) require CSS owners to implement measures to control overflows from their CSS. The proposed permit contains specific terms and conditions that provide limited authority for SPU to discharge combined sewage from designated CSO outfalls. Conditions include requirements for monitoring and reporting of overflows and ambient water quality, including sediment quality; implementation of proper collection system operations and maintenance strategies; and submission of engineering documents related to CSO control projects. The proposed permit also contains a compliance schedule developed to ensure that SPU meets periodic milestones necessary to complete control projects on time.

## **A. Facility description**

### *History*

Seattle Public Utilities (SPU), a department within the City of Seattle (Seattle), owns and operates combined sewage collection systems within the Seattle city limits. Combined sewer systems (CSS) collect rainwater runoff, domestic sewage, and industrial wastewater in the same piping system. The CSS typically transports all wastewater to a sewage treatment plant for treatment and disposal. During periods of heavy rainfall or snowmelt, however, the wastewater volume in a CSS can exceed the capacity of the collection system or treatment plant. For this reason, CSS designs allow occasional overflows that discharge excess wastewater directly to nearby streams, rivers, or other water bodies. Chapter 173-245 WAC and EPA's CSO control policy (59 FR 18688) require owners of combined systems to implement measures designed to minimize the environmental impacts of overflows and to control the frequency of overflows from their CSS.

Seattle's combined sewer system dates from the 1890s, when cities typically used a common sewer system for sanitary sewage and storm drainage. Current operation and maintenance responsibility for combined sewers within Seattle's city limits depend on the service area size. SPU operates and maintains combined collection systems serving areas of up to 1000 acres in size within the city limits and King County Department of Natural Resources and Parks, Wastewater Treatment Division (KC-WTD), operates and maintains sewer trunk lines serving areas greater than 1000 acres. KC-WTD also operates and maintains wastewater and CSO treatment plants that serve the region. This proposed permit regulates combined sewer systems operated and maintained by SPU; NPDES permit # WA0029181 (King County – West Point WWTP) regulates combined sewer systems under KC-WTD responsibility.

SPU has made significant progress towards CSO control since the 1980s by implementing several projects involving the maintenance and modification of existing sewer facilities. Additional projects involved construction of diversion structures and storage facilities. To date SPU has constructed 38 facilities that have reduce overall CSO discharge volume by approximately 70%.

The following 6 major CSO reduction planning documents provide details on SPU's CSO control strategies since 1980:

1. 1980 Facility Plan – This plan represented the City's initial CSO reduction endeavor by proposing and implementing various storage projects.
2. 1988 CSO Control Plan – This plan proposed and implemented various sewer separation projects and storage projects.
3. 2001 CSO Reduction Plan Amendment – This plan proposed implementing various best management practices (BMPs) to reduce the volume of CSOs before implementing additional storage projects. This plan also reevaluated previously studied areas of Seattle and expanded the evaluation to include previously unstudied areas.
4. 2005 CSO Reduction Plan Amendment Update – This plan evaluated impacts of implemented BMPs at a selection of sites identified in the 2001 CSO Reduction Plan Amendment. The plan used the evaluation to revise cost and schedule estimates for implementing BMPs at the remaining sites identified in the 2001 amendment.
5. 2010 CSO Reduction Plan Amendment – This plan proposed various CSO reduction projects for all remaining uncontrolled CSO outfalls.

6. 2015 Plan to Protect Seattle's Waterways – SPU developed this plan to satisfy requirements of a 2013 Federal Consent decree that require development and implementation of a long-term control plan. This plan represents the final plan to control all remaining uncontrolled CSO outfalls by 2025. This plan also includes an Integrated Approach element that defers completion of six CSO control projects in exchange for implementing of three stormwater-only projects that provide greater water quality benefit than the deferred CSO projects. The approved plan requires SPU to complete the deferred CSO control projects by 2030.

#### *Collection system status*

SPU's collection system includes gravity sewage pipelines, pump stations, force mains, CSO outfalls, and CSO control facilities. Currently, the collection system includes:

- Approximately 448 miles of sanitary sewer pipes.
- Approximately 968 miles of combined sewers.
- 68 sewage pump stations.
- 5.5 miles of forcemains.
- 86 CSO outfalls.
- 42 CSO control detention tanks/pipes.
- 22 HydroBrakes.
- 12 Controlled sluice gates with electric valve actuators.

SPU's collection system contains over 1,400 miles of gravity sewers with pipes ranging from 4 to 144 inches in diameter, of which approximately 62 percent are 8-inch collector pipes. The average age of the collection system piping is 75 years. Approximately one-third of the system is combined, one-third partially separated, and one-third fully separated.

#### *Treatment processes*

SPU does not own a wastewater or CSO satellite treatment plant. All sewage collected by SPU's sewer system transfers to KC-WTD facilities for conveyance and treatment at a regional treatment facility or satellite CSO treatment plant, or discharges untreated through one of the CSO outfalls. KC-WTP operates two regional secondary wastewater treatment plants (West Point WWTP and the South WWTP) and four satellite CSO storage and treatment facilities (Alki, Carkeek, Elliott West and Henderson/MLK) related to CSO flows. Ultimately, the treated wastewater from all of these facilities discharges to either Puget Sound, Elliott Bay, or the Duwamish River. Ecology authorizes discharges from the KC-WTD facilities under separate NPDES permits.

#### *Discharge outfalls*

The proposed permit authorizes CSO discharges from 86 individual outfall pipes. Each outfall pipe varies in its configuration in terms of depth and distance from shore. Appendix D lists data about each of the outfalls, including the identification number, the receiving waterbody, and the latitude and longitude of the discharge into the receiving water. It also includes a map showing the location of all of the CSO outfalls as mapped in SPU's geographic information system (GIS).

#### *Solid waste*

All solids in SPU's sewer system are conveyed to King County's secondary wastewater treatment plants for treatment. King County's treatment system includes screening solids from the wastewater. The solids are then washed and compacted prior to disposal in a landfill.

## B. Permit status

Ecology issued the previous permit for Seattle's CSO discharges on October 27, 2010, with a December 1, 2010, effective date. Ecology subsequently modified the permit on September 13, 2012, to eliminate three CSO outfalls and to change the compliance schedule for certain required projects. The permit expired on November 30, 2015.

SPU submitted an application for permit renewal on May 22, 2015. Ecology accepted it as complete on May 26, 2015. The modified permit remains in effect until Ecology issues this proposed permit.

## C. Summary of compliance with previous permit issued on October 27, 2010

SPU generally complied with terms and conditions of the previous permit issued on October 27, 2010. Ecology assesses compliance based on monthly discharge monitoring reports (DMRs), as-needed reports of unauthorized overflows, annual CSO reports, and other written reports. The following provides a summary of SPU's compliance.

A dry weather overflow (DWO) is an overflow from a CSO outfall that is not caused by a rain or snow event. State and federal regulations do not allow DWOs and the previous permit required SPU to report each DWO event in a timely manner. Table 2 lists the total number of DWOs reported to Ecology over the past 14 years. SPU significantly reduced incidents of DWOs during the last permit term, with no overflows during the first three years. Based on SPU's records, the three DWOs in 2013 were due to external factors. One overflow resulted when a subcontractor on the SR-99 tunnel project on the Central Waterfront inadvertently removed a maintenance-hole cover, which allowed debris to enter the system and cause an overflow from outfall 71. The two other overflows resulted from high flows from damaged private side sewer connections to houseboats on Lake Union. The 2014 DWO resulted when an inexperienced field crew followed incorrect bypass procedures, which led to an overflow to Lake Washington from outfall 45.

**Table 2. Dry Weather Overflows – Occurrences and Volumes**

Year	Number of DWOs	Total Volume (gallons)
2001	37	1,927,036
2002	4	906,926
2003	0	0
2004	3	5,120
2005	2	177,748
2006	8	141,766
2007	7	499,264
2008	1	148,282
2009	1	3,509
2010	0	0
2011	0	0
2012	0	0
2013	3	123,670
2014	1	4,757

Compliance with this permit constitutes reasonable progress towards complying with WAC 173-245. EPA and Ecology are also relying on provisions within the federal consent decree to ensure progress continues to be made toward controlling all of the City's CSO outfalls.

#### **A. Technology-based effluent limits**

Federal and state regulations define technology-based effluent limits for domestic wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC (state). These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for domestic wastewater. In addition, the federal CSO Control Policy (59 FR 18688) requires entities with Combined Sewer Overflows to implement "Nine Minimum Controls" as technology-based performance standards for CSO discharges.

Since SPU does not own or operate any CSO treatment facilities, Ecology includes the Nine Minimum Controls in the proposed permit as technology-based limits. The nine minimum controls are largely programmatic policies and practices designed to minimize the impacts untreated CSOs have on human health and the environment. It is not possible with current knowledge and technology to calculate numeric water quality-based effluent limits for CSOs. Ecology may include numeric water quality-based effluent limits in the future permits only after the long-term control plan is in place and after collection of sufficient water quality data.

The nine minimum controls include:

1. Use proper operations and maintenance practices within the combined collection system to reduce the magnitude, frequency, and duration of CSOs.
2. Implement procedures that maximize storage capacity of the combined collection system.
3. Minimize pollution from non-domestic wastewater sources through close management of a pretreatment program.
4. Maximize treatable flow to the wastewater treatment plant during wet weather.
5. Prevent CSO discharges during dry weather and properly report any dry weather CSO discharges immediately to Ecology.
6. Implement procedures to control solid and floatable materials in CSOs.
7. Implement and maintain a pollution prevention program designed to keep pollutants from entering the combined sewer system.
8. Establish a process to notify the public when and where CSOs occur.
9. Monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls, including event-based monitoring of all CSO flow quantity, frequency and duration.

#### **B. Surface water quality-based effluent limits**

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Chapter 173-245 WAC requires that "All CSO sites shall achieve and at least maintain the greatest reasonable reduction, and neither cause violations of applicable water quality standards, nor restrictions to the characteristic uses of the receiving water, nor accumulation of deposits which: (a) Exceed sediment criteria or standards; or (b) have an adverse biological effect." "The greatest reasonable reduction" means control of each CSO outfall such that an average of no more than one untreated discharge may occur per year.

Municipalities must develop CSO reduction plans to achieve this level of control. These plans are substantially equivalent to the long-term control plan (LTCP) as defined by EPA in their CSO control policy. Ecology conditionally approved SPU's CSO Reduction Plan in 1988 with the 2001 CSO Reduction Plan Amendment approved in 2003. This proposed permit requires SPU to submit an amendment of its CSO Reduction Plan which complies with the requirements of WAC 173-245-090(2), and includes additional elements which implement EPA's CSO control policy.

These requirements provide for attainment of water quality standards (WQS) through the "presumption approach." Under the presumption approach, CSO controls are presumed to attain WQS if certain performance criteria are met. A program that meets the criteria specified in WAC 173-245 and EPA's CSO control policy is presumed to provide an adequate level of control to meet the water quality-based requirements of the Clean Water Act, provided Ecology determines that such presumption is reasonable based on characterization, monitoring, and modeling of the system, including consideration of sensitive areas.

It is not possible with current knowledge and technology to determine whether numeric water quality-based effluent limits are necessary for untreated CSOs, and, if so, what the limits should be. For that reason, this permit contains a narrative requirement in SI.A.

The proposed permit requires SPU to implement PCMP monitoring of the controlled CSO outfalls identified in the 2015 CSO Reduction Plan Amendment as a water quality-based requirement. The permit also limits controlled or corrected CSO discharges to one untreated discharge per year per CSO outfall, based on a long-term average defined as a 20-year moving average. In addition, SPU must identify newly corrected or controlled CSOs that meet the state's one untreated discharge per year per CSO standard with the next permit renewal application.

#### *Numerical criteria for the protection of aquatic life and recreation*

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

#### *Numerical criteria for the protection of human health*

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (EPA, 1992). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.



### *Narrative criteria*

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

### *Antidegradation*

**Description--**The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

The facilities covered by the proposed permit must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

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# **PCB/PBDE Loading Estimates for the Greater Lake Washington Watershed**

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September 2013



**King County**

Department of Natural Resources and Parks  
Water and Land Resources Division

**Science and Technical Support Section**

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# **PCB/PBDE Loading Estimates for the Greater Lake Washington Watershed**

## **Prepared for:**

U.S. Environmental Protection Agency Region 10

## **Submitted by:**

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King County Water and Land Resources Division  
Department of Natural Resources and Parks

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**King County**

Department of  
Natural Resources and Parks  
Water and Land Resources Division

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## **EXECUTIVE SUMMARY**

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King County was awarded a Puget Sound Action Agenda: Technical Investigations and Implementation Assistance Grant by the U.S. Environmental Protection Agency (USEPA) to estimate loading of polychlorinated biphenyls (PCBs) and polybrominated diphenylethers (PBDEs) to Lake Washington, Lake Union and Puget Sound; and model potential reduction in Lake Washington fish tissue concentrations associated with selected PCB loading reduction scenarios. A field study was designed and implemented to measure concentrations in key contaminant loading pathways to Lakes Washington and Union (i.e., rivers, streams, stormwater, combined sewer overflows, highway bridges and atmospheric deposition) and measure the PCB/PBDE concentrations in the export pathway leaving the lake system through the Ship Canal locks to Puget Sound. By combining contaminant concentration data with long term flow estimates for these pathways, mass loading estimates to Lakes Washington and Union and export to Puget Sound for total PCB (tPCB) and total PBDE (tPBDE) were developed. Details of the tPCB and tPBDE loading calculation approach and resulting estimates are presented in this report. Sampling details and results are the subject of a separate report.

This project is considered a first step toward understanding the relative importance of major contaminant loading pathways that contribute PCBs and PBDEs to these lakes as well as understanding their long term fate and the potential for recovery. The end result will be a more complete understanding of major pathways transporting PCBs and PBDEs to these lakes, processes controlling their ultimate fate and potential for management actions to reduce health risks from consuming contaminated fish from Lake Washington. The study will also provide a better understanding on which future monitoring and modeling efforts can be planned.

Some overall findings from the PCB and PBDE loading report are highlighted below:

### **PCB Loading Estimate Findings**

- As much as 70 percent of the tPCB load to Lake Washington comes from local tributary watersheds around the lake.
- Three creeks (Thornton, Juanita and May) representing a range in the type and intensity of development were monitored.
  - Thornton Creek had the highest amount of commercial/industrial development that occurred prior to the ban on PCB manufacture and use limitations and the highest estimated tPCB loading.
  - May Creek had the lowest amount of older commercial/industrial development and the lowest estimated tPCB loading.
  - Juanita Creek had intermediate amount of older commercial/industrial development and an estimated tPCB loading that fell between the estimate for Thornton and May creeks.
- Loading estimates and additional analyses suggest that the predominant source of tPCBs is stormwater runoff from developed areas – possibly linked to older

commercial/industrial development. This is consistent with the conceptual model of tPCB sources and pathways emerging from other studies that suggest that PCB sources are concentrated in urban centers containing older commercial and industrial buildings in which paints, caulks, and sealants containing PCBs were used.

- Estimated total tPCB loading to Lake Washington is less than the estimated loading exported from the lake outlet. This is because the lake acts as a sink for PCBs, primarily as the result of sediment accumulation and burial, but also through volatilization through the lake surface. The relative importance of these fate processes will be evaluated in the next phase of this study.
- tPCB concentrations (and hence loading), increase from the outlet of Lake Washington to the outlet of Lake Union to Puget Sound. tPCB loading estimates for Lake Union suggest that this may be the result of loading from CSOs and runoff from local drainage basins.

### **PBDE Loading Estimate Findings**

- In general, there was more uncertainty associated with tPBDE loading estimates and source pathways appeared to be more diffuse. This is consistent with an emerging conceptual model for PBDE sources and pathways based on the fact that PBDEs were introduced more recently into the environment and sources are more dispersed throughout the urban and suburban landscape (e.g., upholstery containing PBDE-based fire retardants).
- Loading estimates for the two major rivers to Lake Washington (Cedar and Sammamish) suggest a tPBDE load somewhat smaller than the tributary stream load, although there is a high degree of uncertainty in these estimates. Loadings from rivers include all pathways from upstream waterbodies.
- The contribution of atmospheric deposition to the surface of Lake Washington was also estimated to be relatively significant; close to 30 percent of the total loading estimate for PBDEs.
- tPBDE loading to Lake Union was dominated by input from Lake Washington. This input was estimated to contribute about 80 percent of the total tPBDE load.

The tPCB loading estimates documented in this report will be used in models that will be developed in the next phase of this study to simulate the response of Lake Washington to reductions in tPCB loading that might result from various management approaches and resulting changes in concentrations in resident fish.

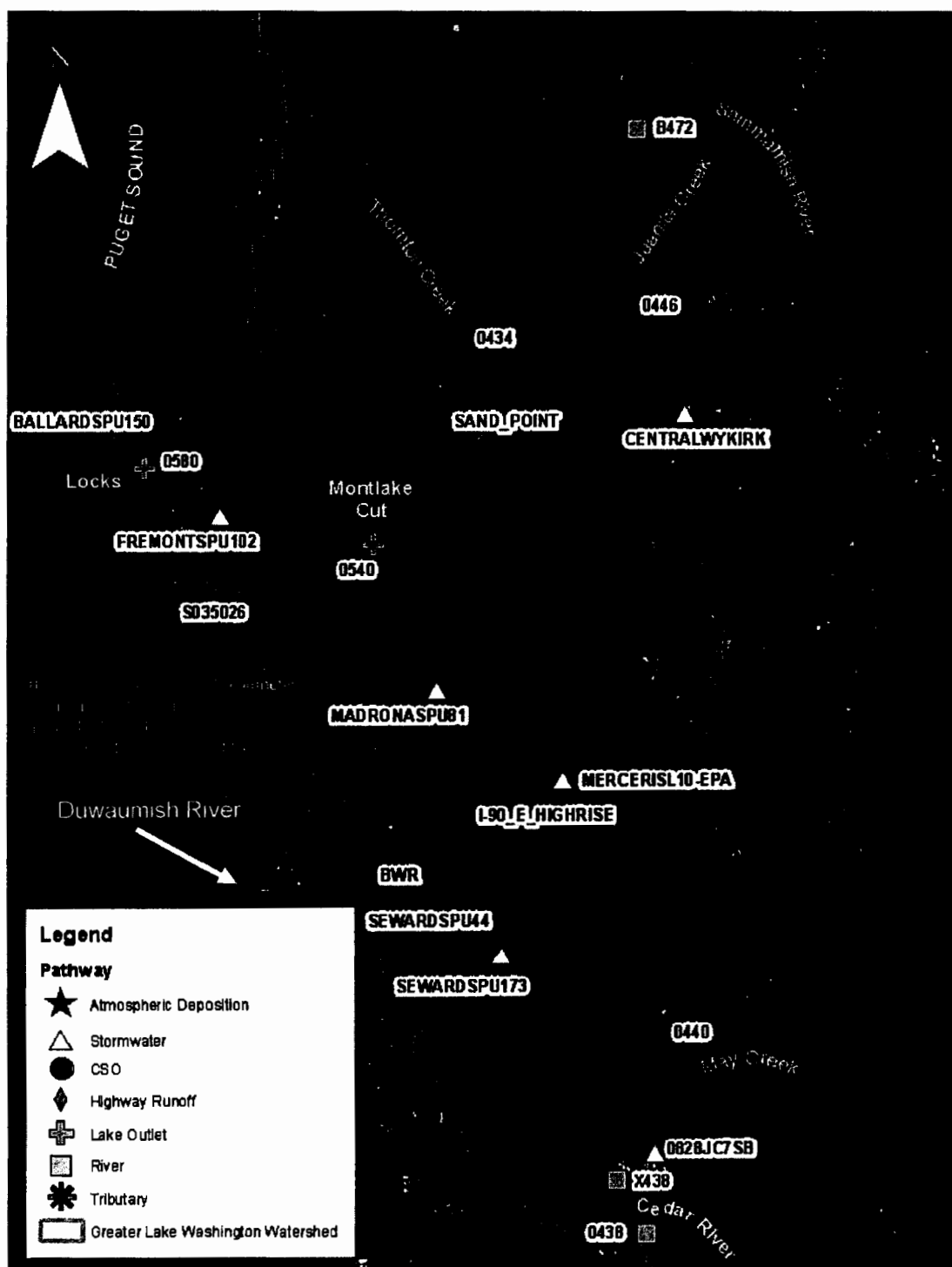


Figure 4. Locations sampled in this study categorized by loading pathway.



Table 1 referred to the associated project data report for sampling details, results, and data handling rules (King County 2013).

Table 1 provides summary statistics for tPCB and tPBDE concentrations in surface water pathways measured at each sampling location. Note that all concentrations are reported here in ng/L ( $10^{-3}$  µg/L) to two significant figures. Summary statistics include the minimum, maximum, mean, median (i.e., 50<sup>th</sup>-percentile) and 25<sup>th</sup>- and 75<sup>th</sup>-percentile concentrations. In general, tPCB and tPBDE concentrations were highest in CSOs and lowest in the two major rivers and lake outlets. tPCB concentrations in stormwater runoff were much lower than concentrations in CSOs and somewhat higher than concentrations measured in tributary streams. tPBDE concentrations in stormwater were somewhat lower than those measured in CSOs and generally higher than concentrations measured in tributary streams.

An initial evaluation of the data indicated that the greatest amount of skew, and hence uncertainty in loading calculations, was observed in the CSO tPCB sampling data (King County 2013). This was partly due to the relatively small number of samples collected (8 CSO events from 3 CSOs were sampled), but was also likely due to other sources of as yet unexplained variation (e.g., PCB contamination hot spots in a particular CSO basin or dominance of older commercial/industrial buildings containing PCB contaminated materials).

Fortunately, additional tPCB data have been collected from CSOs discharging to the Duwamish River using similar sampling methods and laboratory analytical techniques (King County 2011). The Duwamish River empties into marine waters of Elliott Bay in Seattle just south of the outlet of the Greater Lake Washington watershed to Puget Sound (see Figure 1). A total of 45 samples were collected from seven individual CSO locations during the Duwamish River Basin CSO study (King County 2011). tPCB concentrations reported in the Duwamish study were similar to those measured in this study, although not nearly as positively skewed. Also, the mean concentration in the Duwamish study was somewhat lower (65.2 vs. 100 ng/L) and the median concentration was somewhat higher (47.7 vs. 23 ng/L) than in this study (Table 2).

The data from the Duwamish CSO study were combined with the data from this study to develop a more accurate estimate of the mean CSO tPCB concentration and more accurate statistical characterization to use in estimating tPCB loading uncertainty to Lakes Washington and Union from this pathway. The statistical summary of the combined CSO tPCB data are provided in Table 2.

Mean concentrations determined for each pathway were used to calculate tPCB and tPBDE loading, while the 25<sup>th</sup>- and 75<sup>th</sup>-percentile concentrations were used to establish the range of uncertainty in the estimates. Median concentrations were also used to estimate loading for comparison to loading estimates based on the mean concentration and to illustrate the amount of skew in observed pathway concentrations.

Table 1. tPCB and tPBDE results summary for surface water samples. Note that concentrations are all shown in ng/L and rounded to two significant figures.

Pathway/Location <sup>a</sup>	n	tPCB (ng/L)			Percentiles					tPBDE (ng/L)					Percentiles				
		mean	min	max	25th	50th <sup>b</sup>	75th	mean	min	max	25th	50th <sup>b</sup>	75th						
Major Rivers/Lake Outlets																			
Sammamish River	6	0.12	0.042	0.27	0.073	0.110	0.13	0.61	0.02	1.6	0.03	0.47	1.1						
Cedar River <sup>c</sup>	6	0.091	0.022	0.23	0.043	0.066	0.11	0.60	0.003	3.2	0.02	0.058	0.25						
Montlake Cut	6	0.11	0.051	0.26	0.059	0.085	0.11	0.65	0.18	1.6	0.27	0.53	0.76						
Ship Canal Locks <sup>d</sup>	6	0.29	0.14	0.58	0.15	0.20	0.43	0.80	0.029	2.1	0.23	0.60	1.1						
Tributaries <sup>e</sup>																			
Thornton	4	4.2	1.1	11.0	1.5	2.7	5.4	7.5	1.9	21	2.3	3.6	8.8						
Juanita	4	1.7	0.081	5.9	0.23	0.47	2.0	3.8	0.059	14	0.37	0.53	4.0						
May	4	1.1	0.10	2.6	0.12	0.77	1.7	0.9	0.059	2.8	0.10	0.42	1.2						
All combined	12	2.4	0.081	11	0.24	1.3	2.9	4.1	0.059	21	0.39	1.3	3.2						
Highway Bridge (I-90)	4	9.3	3.3	16	5.6	8.9	13	60	2.0	220	4.2	6.2	62						
Stormwater																			
Renton	3	2.3	1.5	3.4	1.7	2.0	2.7	0.8	0.0091	2.4	0.026	0.043	1.2						
Kirkland	4	1.2	0.0078	2.5	0.21	1.2	2.2	0.97	0.012	3.0	0.23	0.43	1.2						
Fremont	3	18	3.9	39	7.3	11	25	57	1.8	170	3.1	4.5	85						
Madrona	4	7.1	4.1	12	4.7	6.3	8.7	4.1	1.6	9.4	1.6	2.8	5.3						
Mercer Island	4	1.9	0.55	3.6	0.87	1.8	2.9	0.79	0.0078	2.2	0.020	0.47	1.2						
Seward Park	3	1.9	0.77	2.5	1.6	2.4	2.5	0.070	0.013	0.18	0.017	0.022	0.10						
All Combined	21	5.1	0.0078	39	1.5	2.5	4.1	9.4	0.0078	170	0.024	0.93	2.4						
CSOs																			
Ballard	2	23	19	28	-	23	-	91	16	170	-	91	-						
Dexter	3	250	28	570	93	160	360	140	74	210	110	150	180						
Seward Park	3	4.3	2.3	6.2	3.4	4.5	5.3	16	6.7	21	14	20	21						
All Combined	8	100	2.3	570	5.8	23	61	83	7	210	19	48	150						

<sup>a</sup> **Sample station locator IDs: Rivers/Lake Outlets** - Sammamish River (B472), Cedar River (0438), Montlake Cut (0540), Ship Canal Locks (0580), Tributaries - Thornton Creek (0434), Juanita Creek (0446), May Creek (0440); **Highway Bridge I-90 - I-90 E\_HIGHRISE: Stormwater** - Renton (0828/C7SB), Kirkland (CENTRALWYKIRK), Fremont (FREMONTSPU102), Madrona (MADRONASPU81), Mercer Island (MERCERISL10-EPA), Seward Park (SEWARDSPU173), CSOs - Ballard (BALLARDSPU150), Dexter (S035026), Seward Park (SEWARDSPU44).

<sup>b</sup> The 50<sup>th</sup> percentile is synonymous with the median.

<sup>c</sup> Upper Cedar River station only.

<sup>d</sup> All PBDE congeners were qualified as non-detect in one sample at the Ship Canal Locks. The highest detection limit of all congeners in this sample was used to represent the tPBDE result.

<sup>e</sup> The tributary sample statistics represent one base flow and three storm event samples for each tributary (total of four samples per tributary).

**Table 2. Comparison of CSO tPCB concentrations (ng/L) measured in this study and a previous study of Duwamish River CSOs.**

	Minimum	25 <sup>th</sup> - percentile	Median	Mean	75 <sup>th</sup> - percentile	Maximum
	tPCB (ng/L)					
This study (n = 8)	2.3	5.8	23.	100	61.	570
Duwamish River <sup>a</sup> (n = 45)	8.01	30.0	47.7	65.2	71.7	455
Combined data (n = 53)	2.3	28.	44.	71.	72.	570

<sup>a</sup> Source: King County (2011)

### 3.2 Hydrologic Data

In addition to the PCB/PBDE data collected as part of this study, available river and stream flow data provided by the U.S. Geological Survey (USGS), King County and Snohomish County were used to estimate contaminant loading from the monitored rivers and tributary streams (Figure 5).<sup>11</sup> Note that river and stream monitoring locations were intentionally selected to be co-located with continuous gauging locations.

Because discharge from the locks to Puget Sound is not directly measured, precipitation data were used in conjunction with daily flow, lake elevation and evaporation estimates to develop a lake water budget. The water budget provided an estimate of discharge to Puget Sound that was combined with contaminant concentrations measured just upstream of the locks to estimate contaminant loading to Puget Sound. Precipitation data were also used to estimate highway bridge runoff and contaminant loading to the lakes from this pathway.

Daily precipitation data for two stations near the Lake Washington shoreline were obtained from the National Climatic Data Center (Figure 5). Evaporation data were provided by the Washington State University (WSU) Puyallup Research and Extension Center in Puyallup, WA approximately 37 km (23 mi) to the south of Lake Washington.<sup>12</sup> This is the closest station reporting this type of continuous data over the period of interest.

Daily changes in the elevation of Lakes Washington and Union were based on a stage record at the locks obtained from the Seattle District U.S. Army Corps of Engineers (USACOE) (Figure 5).<sup>13</sup> Details of methods used to develop the lake water budget are described in Section 3.4.6 below.

<sup>11</sup> Respectively, USGS: [http://waterdata.usgs.gov/wa/nwis/dv/?referred\\_module=sw](http://waterdata.usgs.gov/wa/nwis/dv/?referred_module=sw); King County: <http://green.kingcounty.gov/wlr/waterres/hydrology/>; Snohomish County: [http://www1.co.snohomish.wa.us/Departments/Public Works/Divisions/SWM/Library/Data/](http://www1.co.snohomish.wa.us/Departments/Public%20Works/Divisions/SWM/Library/Data/)

<sup>12</sup> WSU Extension Puyallup AgWeatherNet station: <http://weather.wsu.edu/awn.php>

<sup>13</sup> U.S. Army Corps of Engineers, Northwestern Division dataquery: <http://www.nwd-wc.usace.army.mil/perl/dataquery.pl?k=%22lake+washington%22>

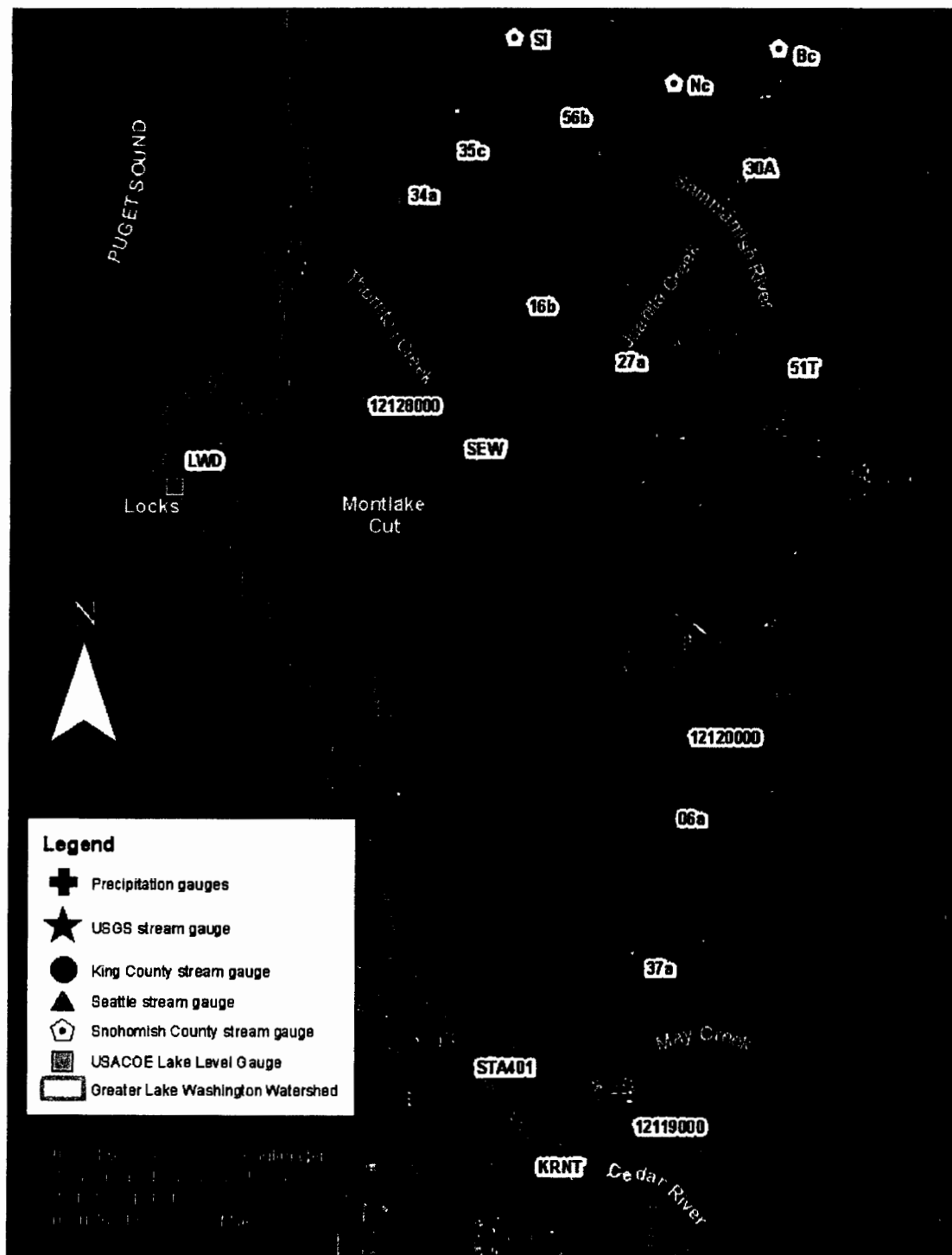


Figure 5. Locations where flow and precipitation were recorded and obtained for use in this study.

## 6.0. CONCLUSIONS

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The current best estimates of tPCB loading to Lakes Washington and Union are shown in Figure 14. These estimates suggest that local drainage basins contribute about 67 percent of the total tPCB load to Lake Washington. The next most significant pathways appear to be atmospheric deposition to the surface of the lake and major river loading; each accounting for ~14 percent of the total loading. This suggests that over 95 percent of the loading to Lake Washington can be accounted for from these three pathways. Based on the analyses in this report, there appears to be a large range in the plausible estimates of local drainage basin loading, but even the lowest estimates are above the uncertainty range in the next highest loading estimate. Depending on the true local drainage tPCB loading contribution, local drainage basin loading may be more or less significant. Total tPCB loading from all of the assessed pathways to Lake Washington is estimated to be 672 g yr<sup>-1</sup>.

For Lake Union, input (export) from Lake Washington (140 g yr<sup>-1</sup>) appears to be the most significant source of tPCB, contributing about 57 percent of the total load (244 g yr<sup>-1</sup>). CSOs appear to be the next highest contributor (~24 percent), but there is considerable uncertainty in this estimate. Local drainage basin loading, which is almost exclusively stormwater runoff, is estimated to contribute approximately 16 percent, so together these three pathways are estimated to deliver about 97 percent of the total load to Lake Union. CSOs and stormwater runoff from the local drainage basins, along with atmospheric deposition and bridge runoff, are the likely contributors to the apparent increase in tPCB concentration and loading between Lake Washington and the discharge through the locks to Puget Sound. Although tPCB load appears to increase between Lake Washington and Puget Sound, Lake Washington appears to be a sink for tPCBs based on the substantial reduction in tPCB load (~80 percent) observed between inputs to Lake Washington and export through the Lake Washington Ship Canal (see Table 18).

The current best estimates of tPBDE loading to Lakes Washington and Union are shown in Figure 15. tPBDE loading estimates for major rivers, local drainage basins and atmospheric deposition to Lake Washington are relatively uncertain, but the best current estimate is that they together contribute almost all of the tPBDE to the lake. Total tPBDE loading from all of the assessed pathways to Lake Washington is estimated to be 2,023 g yr<sup>-1</sup>.

Lake Washington appears to be the largest source of tPBDE to Lake Union (800 g yr<sup>-1</sup>), contributing about 80 percent of the total load (968 g yr<sup>-1</sup>). CSO and local drainage runoff inputs have similar uncertainty, but are also estimated to contribute similar amounts – approximately 7 percent each so that most of the tPBDE loading to Lake Union is associated with those three pathways.

These tPCB loading estimates will be used in the models that will be developed in the next phase of this study to simulate the response of Lake Washington to reductions in tPCB loading that might result from various management approaches and resulting changes in concentrations in resident fish.

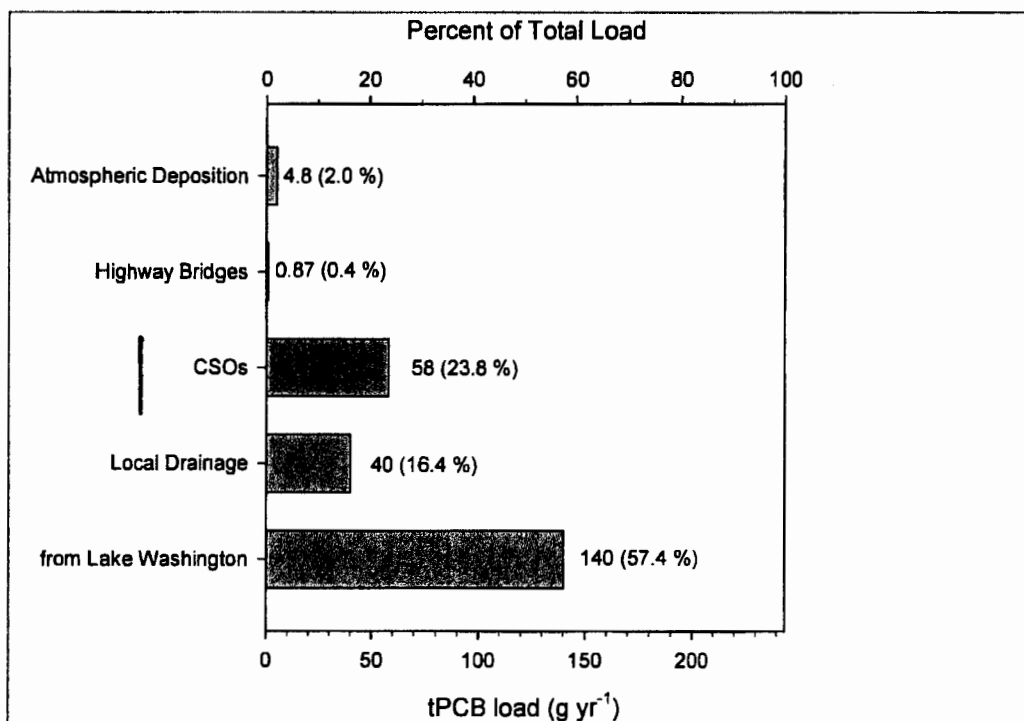
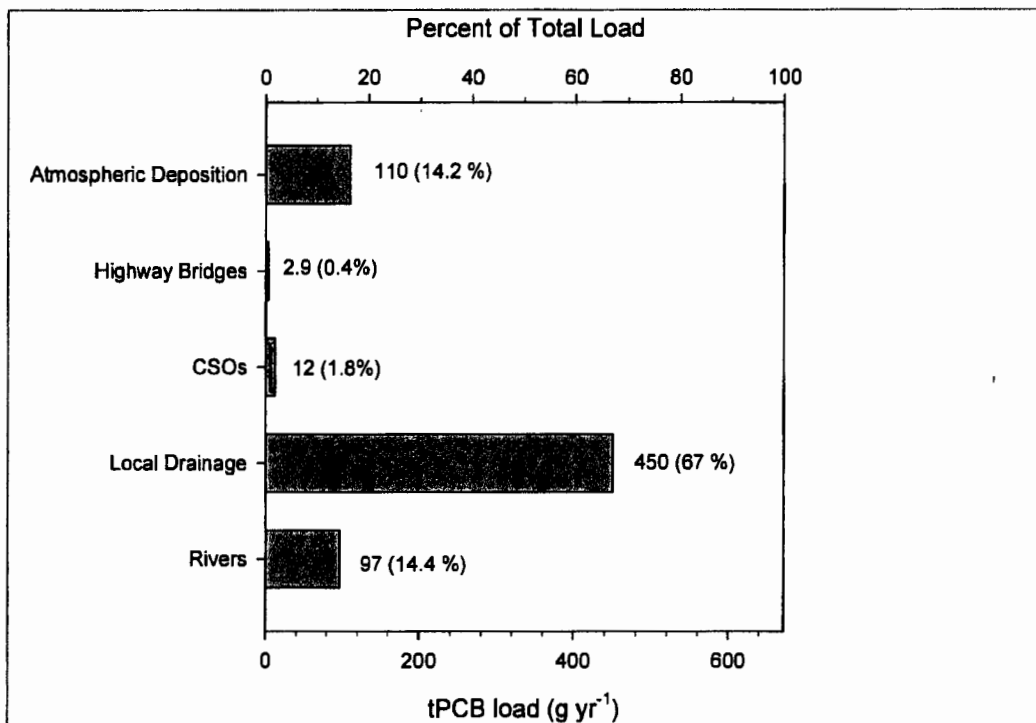


Figure 14. Bar charts showing current best estimates of the relative contribution of tPCB (g yr<sup>-1</sup>, percent of total) from each pathway to Lake Washington (top) and to Lake Union (bottom).

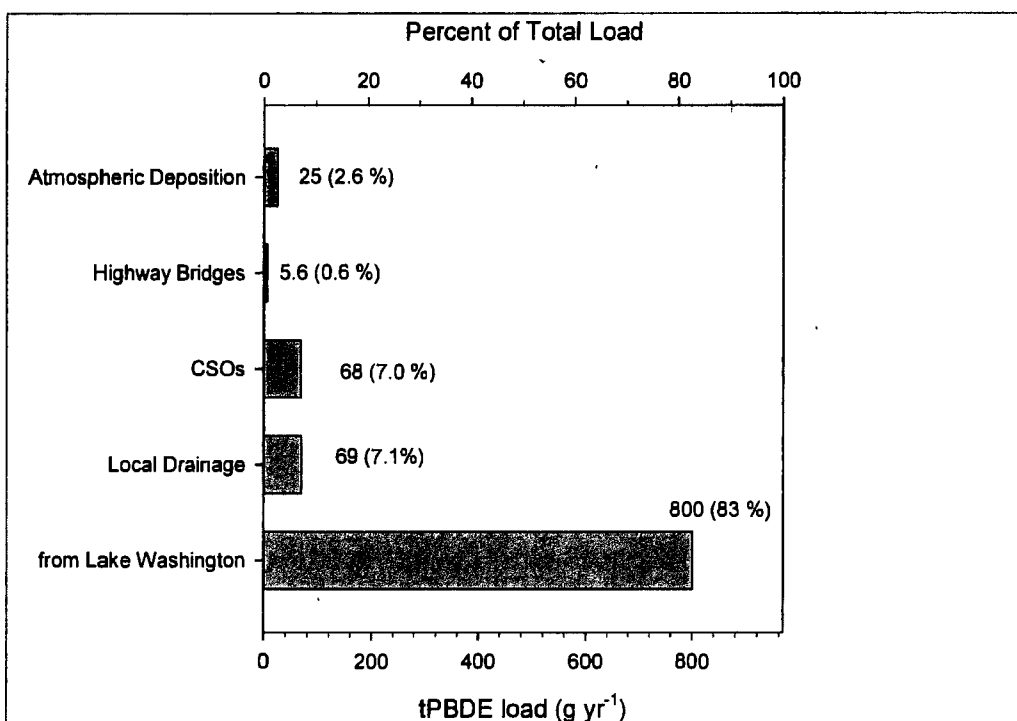
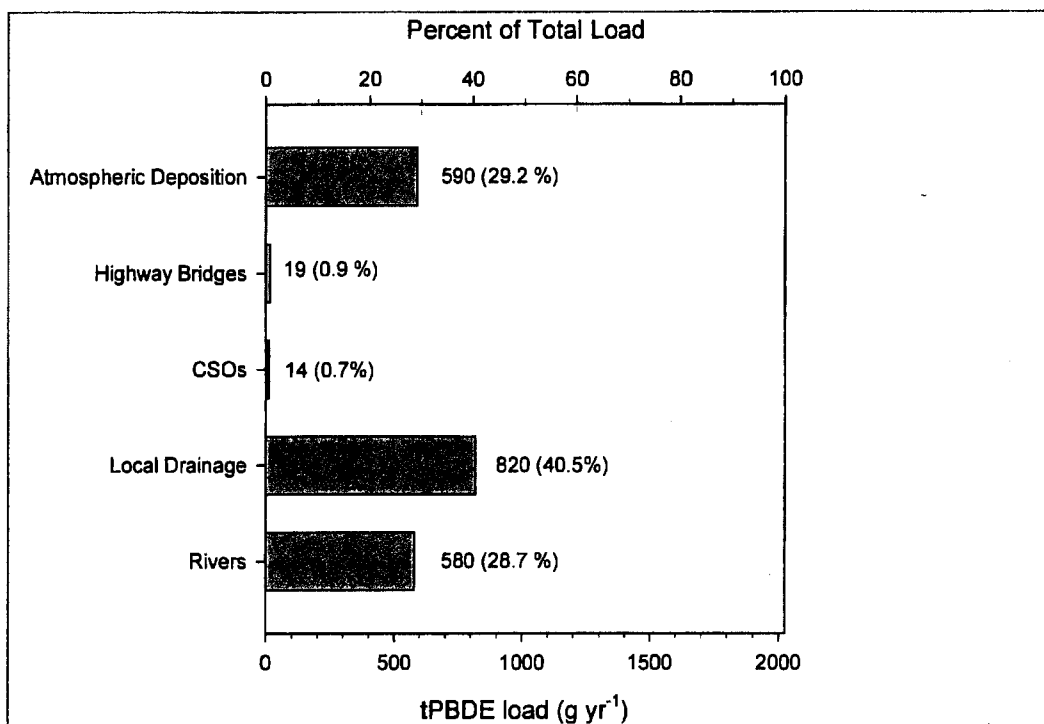


Figure 15. Bar charts showing current best estimate of the relative contribution of tPBDE (g yr<sup>-1</sup>, percent of total) from each pathway to Lake Washington and to Lake Union.



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## 2013 News Releases

### Seattle and King County, Wash. Agree to Upgrade Combined Stormwater Systems to Protect Local Waters from Raw Sewage Overflows / City and county combined sewer overflows expected to drop by up to 99% by 2030

Release Date: 04/16/2013

Contact Information: Dale Kemery (news media only) [Kemery.dale@epa.gov](mailto:Kemery.dale@epa.gov) 202-564-7839  
202-564-4355

WASHINGTON – King County and the city of Seattle have agreed to invest in major upgrades to local sewage and combined stormwater collection, piping and treatment under settlements with the Department of Justice and the U.S. Environmental Protection Agency (EPA). The state of Washington was a co-plaintiff and partner in these settlements.

The agreements are the result of extensive federal and state government cooperation and pave the way for employing more "green infrastructure" projects like green roofs, permeable pavements, and urban runoff gardens, which help reduce demands on local sewer and stormwater systems.

"EPA is working with cities and counties to find smart, effective solutions to reduce raw sewage and contaminated stormwater," said Cynthia Giles, assistant administrator for EPA's Office of Enforcement and Compliance Assurance. "Today's settlements allow Seattle and King County to tackle their biggest water quality problems first and use innovative solutions, like green infrastructure, to help dramatically improve local water quality."

"Today's settlement will substantially reduce overflows of sewage-contaminated stormwater into the Puget Sound and other area waterways and significantly benefit the environment and health of residents of King County and Seattle," said Ignacia S. Moreno, Assistant Attorney General for the Justice Department's Environment and Natural Resources Division. "The agreement provides a long-term planning approach to managing the area's stormwater that integrates green infrastructure and requires improvements to system-wide sewer operations and maintenance."

Both agreements allow the city and county to use an integrated planning approach, which encourages communities to set their own clean water project priorities and invest in fixing the most pressing problems first. The settlements also require King County and Seattle to develop and implement a joint plan to improve system-wide operations and maintenance, since Seattle conveys the combined sewage it collects to King County's system for treatment prior to discharge.

#### KING COUNTY

Under the terms of the county settlement, King County will implement a long-term plan for controlling sewer overflows. By implementing these measures, King County will reduce its raw sewage discharges by approximately 95 to 99 percent, better protecting Puget Sound, Lake Washington, and the Duwamish River from sewage-laced overflows. The improvements and upgrades are expected to cost approximately \$860 million. In addition, King County will pay a civil penalty of \$400,000.

The agreement allows the county to substitute green infrastructure projects, like green roofs, permeable pavements, and urban gardens, which help reduce the demands on local sewer and stormwater systems, at four of its sewer overflow control projects.

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#### Recent additions

- 12/31/2013 EPA Extends Public Comment Period to February 5 for Plan to Address Pollution at Ringwood Mines Superfund Site in Ringwood, New Jersey
- 12/26/2013 EPA Seeks Nominations for Prestigious Annual Environmental Quality Awards; Awards Recognize Efforts in Communities to Protect Public Health and the Environment
- 12/23/2013 EPA Completes Work at Newark, New Jersey Housing Project to Protect the Community from High Levels of Lead in Soil; 650 Tons of Lead-contaminated Soil Removed in \$1.4 Million Cleanup to Protect Children from Lead Exposure
- 12/20/2013 Florida Pesticide Producer to Pay \$1.7 Million Penalty for Selling Misbranded Pesticides
- 12/19/2013 Energy Company to Pay \$3.2 Million Penalty to Resolve Clean Water Violations in West Virginia / Chesapeake Appalachia LLC to spend estimated \$6.5 million to restore areas damaged by natural gas extraction activities

Between 2006 and 2010, King County discharged approximately 800 million gallons of raw sewage to waters of the United States on an annual basis through discharges from its combined sewer system. During this time period, the county also violated the effluent limitations of its discharge permit, including fecal coliform at more than one of its wastewater treatment plants, and allowed wastewater to bypass secondary treatment at one of its wastewater treatment plants in violation of its discharge permit and the Clean Water Act.

#### CITY OF SEATTLE

Under the settlement with the city of Seattle, the city will develop and implement a long-term plan for better controlling sewer overflows and improve system-wide operations and maintenance. The city will also implement plans to control fats, oils, and greases, and reduce debris being discharged by the system. In addition, the settlement provides Seattle with the opportunity to also use an integrated planning approach and to substitute green infrastructure at several of its sewer overflow control projects. By implementing these measures, the city will reduce its raw sewage discharges by approximately 99 percent at an estimated cost of \$600 million. Seattle will also pay a civil penalty of \$350,000.

Between 2007 and 2010, Seattle discharged approximately 200 million gallons of raw sewage into area waterways on an annual basis. During this time period, the city also improperly operated and maintained its sanitary sewer system, resulting in unauthorized discharges of raw sewage to public and private properties, including basement backups.

Keeping raw sewage and contaminated stormwater out of the waters of the United States is one of the EPA's top priorities. Reductions in sewer and stormwater overflows are accomplished by obtaining cities' commitments to implement timely, affordable solutions to these problems, which may also include the use of Integrated Municipal Stormwater and Wastewater Plans. This approach can also lead to more sustainable and comprehensive solutions, such as green infrastructure, that improve water quality and enhance community vitality.

The settlement, lodged today in the U.S. District Court for the Western District of Washington, is subject to a 30-day public comment period and approval by the federal court.

More information about the settlement: [www.epa.gov/enforcement/water/cases/washington.html](http://www.epa.gov/enforcement/water/cases/washington.html)

More information about EPA's national enforcement initiative:  
<http://www.epa.gov/compliance/data/planning/initiatives/2011sewagestormwater.html>

More information about Integrated Municipal Stormwater and Wastewater Plans:  
<http://cfpub.epa.gov/nodes/integratedplans.cfm>

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IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WASHINGTON

UNITED STATES OF AMERICA,	)	
	)	
and	)	
	)	
THE STATE OF WASHINGTON,	)	
	)	Civil Action No. 2:13-cv-678
Plaintiffs,	)	
	)	
v.	)	
	)	
THE CITY OF SEATTLE,	)	
WASHINGTON,	)	
	)	
Defendant.	)	
	)	

**COMPLAINT**

Plaintiffs, the United States of America, by the authority of the Attorney General of the United States and through the undersigned attorneys, acting at the request and on behalf of the Administrator of the United States Environmental Protection Agency (“EPA”), and the State of Washington, by the authority of the Attorney General of Washington and through its undersigned counsel, acting at the request and on behalf of the Washington Department of Ecology (“Ecology”), jointly file this complaint and allege as follows:

**NATURE OF THE ACTION**

1. This is a civil action for injunctive relief and civil penalties brought against the City of Seattle (“City”) pursuant to Sections 309(b) and (d) of the federal Clean Water Act (“CWA”), 33 U.S.C. § 1319(b) and (d) and the Washington Water Pollution Control Act, Rev. Code of Wash. (“RCW”) §§ 90.48.037 and 90.48.144, for the City’s unauthorized and illegal discharges of pollutants in violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a) and RCW §§ 90.48.080 and 90.48.162, including violations of terms and conditions established in the National Pollutant Discharge Elimination System (“NPDES”) permits issued to the City by Ecology, as authorized by the EPA under Section 402(b) of the CWA, 33 U.S.C. § 1342(b).

**JURISDICTION, VENUE, NOTICE, AND AUTHORITY**

2. This Court has jurisdiction over the subject matter of this action pursuant to Section 309(b) of the CWA, 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1331, 1345 and 1355.

3. Pursuant to 28 U.S.C. § 1367(a), this Court has supplemental jurisdiction over state law claims under the Washington Water Pollution Control Act, Chapter 90.48 RCW, because the state claims are related to the federal claims and form part of the same case or controversy.

4. Venue is proper in this district pursuant to 28 U.S.C. § 1391(b) and Section 309(b) of the CWA, 33 U.S.C. § 1319(b), because it is the judicial district where the City of Seattle is located and where the events or omissions giving rise to the claims occurred. Venue is also proper in this district pursuant to 28 U.S.C. § 1395(a).

5. As a signatory to this Complaint, the State of Washington has actual notice of the commencement of this action, in accordance with Section 309(b) of the CWA, 33 U.S.C. § 1319(b).

6. Authority to bring this action is vested in the Attorney General of the United States under Section 506 of the CWA, 33 U.S.C. § 1366, and 28 U.S.C. §§ 516 and 519.

7. The Attorney General of Washington is authorized to bring this suit on behalf of the State of Washington under RCW §§ 90.48.037 and 43.10.030.

8. The State of Washington, acting through the Attorney General, has joined as a party plaintiff pursuant to Section 309(e) of the CWA, 33 U.S.C. § 1319(e).

#### **DEFENDANT**

9. Defendant City of Seattle is a political subdivision of the State of Washington.

10. Defendant City of Seattle is a “person” within the meaning of Section 502(5) of the CWA, 33 U.S.C. § 1362(5) and RCW § 90.48.020, and a “municipality” within the meaning of Section 502(4) of the CWA, 33 U.S.C. § 1362(4), and a “municipal corporation” under RCW § 90.48.162.

11. Among other responsibilities, Defendant City of Seattle is responsible for the operation and maintenance of a separate sanitary sewer system and combined sanitary and stormwater sewer system (“combined sewer system”) serving residential, commercial, and industrial entities throughout the City of Seattle, Washington and adjacent areas.

#### **STATUTORY BACKGROUND**

12. The CWA is a comprehensive statute designed “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). To achieve that

goal, Section 301(a) of the CWA, 33 U.S.C. § 1311(a), prohibits the “discharge of pollutants” except as in compliance with an NPDES permit issued by the EPA or an authorized state pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.

13. Similarly, the public policy of the State of Washington is “to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state . . . .” RCW § 90.48.010. To that end, RCW 90.48.080 makes it unlawful for any person to cause or tend to cause pollution of the waters of the State of Washington, and RCW § 90.48.162 requires municipal corporations operating sewerage systems to obtain a permit from Ecology to dispose of waste materials into waters of the State of Washington.

14. The CWA defines the phrase “discharge of pollutants” to include “any addition of any pollutant to navigable waters from any point source.” 33 U.S.C. § 1362(12).

15. “Navigable waters” is defined as “the waters of the United States, including the territorial seas.” 33 U.S.C. § 1362(7).

16. Federal regulations promulgated pursuant to the CWA define the term “waters of the United States” to include, among other things, (i) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (ii) all interstate waters; (iii) all other waters such as intrastate lakes, rivers and streams, including intermittent streams, the use, degradation,



or destruction of which would or could affect interstate or foreign commerce; (iv) tributaries of waters of the United States; and (v) wetlands adjacent to these waters. 40 C.F.R. § 122.2.

17. Section 502(6) of the CWA defines “pollutant” to include, inter alia, sewage. 33 U.S.C. § 1362(6).

18. The CWA defines the term “point source” to mean “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit . . . from which pollutants are or may be discharged.” 33 U.S.C. § 1362(14).

19. The Washington Water Pollution Control Act defines “pollution” to include discharge of any liquid, solid, or other substance that will or is likely to render any “waters of the state” harmful to the public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or aquatic life. RCW § 90.48.020.

20. The Washington Water Pollution Control Act defines “waters of the state” to include “lakes, rivers, ponds, streams, inland waters, underground waters, salt water and all other surface waters and watercourses within the jurisdiction of the state of Washington.” RCW § 90.48.020.

21. Section 402(a) of the CWA, 33 U.S.C. § 1342(a), establishes the NPDES permit program, and authorizes the EPA to issue permits for the discharge of pollutants, but only in compliance with Section 301 of the CWA, 33 U.S.C. § 1311, and such other conditions as the EPA determines are necessary to carry out the provisions of the CWA.

22. Section 402(b) of the CWA, 33 U.S.C. § 1342(b), provides that EPA may authorize a

state to administer the NPDES permit program within its jurisdiction. The State of Washington has been authorized to administer the NPDES permit program since November 14, 1973. RCW § 90.48.260 designates Ecology as the state water pollution control agency for all purposes of the CWA, and authorizes Ecology to take all action necessary to meet the requirements of the CWA, including administering the NPDES permitting program in Washington.

23. The EPA retains concurrent enforcement authority pursuant to Section 402(i) of the CWA, 33 U.S.C. § 1342(i).

24. Section 309(b) of the CWA, 33 U.S.C. § 1319(b), authorizes the EPA to commence a civil action for appropriate relief, including a permanent or temporary injunction, when any person violates, inter alia, Section 301 of the CWA, 33 U.S.C. § 1311, or violates any permit condition or limitation in a NPDES permit issued pursuant to Section 402 of the CWA, 33 U.S.C. § 1342.

25. The Washington Water Pollution Control Act authorizes Ecology, through the Attorney General of Washington, to bring any appropriate action, including action for injunctive relief, as may be necessary to carry out the provisions of this Act. RCW § 90.48.037.

26. Section 309(d) of the CWA, 33 U.S.C. § 1319(d), provides that any person who violates, inter alia, Section 301 of the CWA, 33 U.S.C. § 1311, or violates any permit condition or limitation in a NPDES permit issued pursuant to Section 402 of the CWA, 33 U.S.C. § 1342, shall be subject to a civil penalty not to exceed \$32,500 per day for each violation that occurred after March 15, 2004 but before January 12, 2009, and \$37,500 per day for each violation occurring after January 12, 2009, pursuant to the Federal Civil Penalties Inflation Adjustment

Act of 1990 (28 U.S.C. § 2461 note; Pub. L. 101-410), as amended by the Debt Collection Improvement Act of 1996 (31 U.S.C. § 3701 note; Pub. L. 104-134); see 40 C.F.R. Part 19.

27. RCW § 90.48.144 provides that any person who violates any provision of the Washington Water Pollution Control Act or any NPDES permit condition shall be liable for a civil penalty of up to \$10,000 per day for each violation.

### **GENERAL ALLEGATIONS**

28. At all relevant times to this Complaint, the City has owned and operated separate sanitary and combined sewer collection and transmission systems (collectively referred to hereafter as “Wastewater Collection System”), which receive and transmit wastewater from residential, commercial, industrial and combined sewage sources within the City of Seattle and adjacent areas. The City of Seattle does not own or operate any wastewater treatment facility; instead, it conveys all wastewater to King County for treatment.

29. The City’s Wastewater Collection System, includes, without limitation, over 1,400 miles of sewer lines, 5.5 miles of force mains, and 67 pump stations. Of the more than 1,400 miles of sewer lines, 968 miles are “combined sewers” (i.e., the pipes carry both wastewater and stormwater in the same pipe) and 448 miles are “separate sewers” (i.e, there are two sets of pipes, one for wastewater and the other for stormwater).

30. The City’s Wastewater Collection System is a “treatment works” as defined by Section 212(2)(A) and (B) of the CWA, 33 U.S.C. § 1292(2)(A) and (B), and a “publicly owned treatment works” as defined by the federal regulations implementing the CWA at 40 C.F.R. § 122.2 (cross-referencing the definition at 40 C.F.R. § 403.3(q)). The City’s Wastewater

Collection System includes point sources within the meaning of Section 502(14) of the CWA, 33 U.S.C. § 1362(14).

31. At all relevant times to this Complaint, the City has “discharged pollutants,” including raw sewage, from its Wastewater Collection System within the meaning of Sections 502(6) and (12) of the CWA, 33 U.S.C. §§ 1362(6) and (12), from “point sources” within the meaning of Section 502(14) of the CWA, 33 U.S.C. § 1362(14), into Puget Sound, Lake Washington, the Lake Washington Ship Canal, Elliott Bay, Lake Union, Green Lake, Salmon Bay, and Duwamish River.

32. At all times relevant to this Complaint, the City has “caused pollution” within the meaning of RCW §§ 90.48.020 and 90.48.080, by discharging sewage into Puget Sound, Lake Washington, the Lake Washington Ship Canal, Elliott Bay, Lake Union, Green Lake, Salmon Bay, and Duwamish River.

33. Puget Sound, Lake Washington, the Lake Washington Ship Canal, Elliott Bay, Lake Union, Green Lake, Salmon Bay, and Duwamish River are “navigable waters” within the meaning of Section 502(7) of the Clean Water Act, 33 U.S.C. § 1362(7) and “waters of the United States” within the meaning of 40 C.F.R. § 122.2, as well as “waters of the state” within the meaning of RCW § 90.48.020.

34. At all relevant times to this Complaint, the State of Washington has been authorized by EPA, pursuant to Section 402(b) of the CWA, 33 U.S.C. § 1342(b), to administer the NPDES permit program for regulating discharges of pollutants into navigable waters within its jurisdiction.

35. The City discharges pollutants from its Wastewater Collection System pursuant to NPDES permit no. WA-003168-2 (“NPDES Permit”). The State of Washington last re-issued the NPDES permit to the City on October 27, 2010 with an effective date of December 1, 2010, and an expiration date of November 30, 2015.

36. At all relevant times to this Complaint, the City’s NPDES Permit has authorized the discharge of pollutants from 90 combined sewer overflows (“CSO”) outfall locations identified in Section S1 of its Permit, subject to certain limitations and conditions.

37. Each CSO outfall is a “point source” within the meaning of Section 502(14) of the CWA, 33 U.S.C. § 1362(14).

38. Section S5.5 of the City’s NPDES Permit prohibit “dry weather overflows” from the CSO outfalls.

39. Section S4 of the City’s NPDES Permit requires the City to “at all times properly operate and maintain all facilities and systems of conveyance and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of this permit.” This condition is known as the “Proper Operation and Maintenance” condition.

40. At various times relevant to this Complaint, the City has violated, Sections 301(a) and 402 of the CWA, 33 U.S.C. §§ 1311(a) and 1342, and RCW §§ 90.48.080 and 90.48.162, by failing to meet the conditions contained in its NPDES Permit issued by the State of Washington, and by discharging pollutants without an NPDES permit.

**FIRST CLAIM FOR RELIEF**

**CSOs - Dry Weather Overflows**

41. Paragraphs 1-40 are realleged and incorporated herein by reference.

42. At various times relevant to this Complaint, the City has discharged pollutants into waters of the United States and/or state from some of the CSO outfall locations identified in Section S1 of its NPDES Permit during dry weather, not as a result of precipitation, in violation of its NPDES Permit, Section 301(a) of the CWA, 33 U.S.C. § 1311, and RCW § 90.48.080.

43. Each of the foregoing discharges violates the terms and conditions of the City's NPDES Permit and constitutes a separate violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a), for each day of each discharge from each location.

44. Each of the foregoing discharges violates the terms and conditions of the City's NPDES Permit and constitutes a separate violation of RCW § 90.48.080 for each day of each discharge from each location.

45. Unless enjoined by an order of the Court, the City will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a) and RCW § 90.48.080.

46. The City is liable for civil penalties of \$32,500 per day for each violation occurring between March 15, 2004 and January 12, 2009; and up to \$37,500 per day for each violation occurring after January 12, 2009, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. § 2461 note; Pub. L. 101-410), as amended by the Debt Collection Improvement Act of 1996 (31 U.S.C. § 3701 note; Pub. L. 104-134); see 40 C.F.R. Part 19.

47. The City is liable to the State of Washington for civil penalties of up to \$10,000 per

day for each violation, pursuant to RCW § 90.48.144.

## **SECOND CLAIM FOR RELIEF**

### **Unauthorized Discharges**

48. Paragraphs 1-47 are realleged and incorporated herein by reference.

49. At various times relevant to this Complaint, the City has discharged pollutants into waters of the United States and/or the state from point sources not identified or authorized by any NPDES Permit issued by EPA or the State of Washington, pursuant to Section 402 of the CWA, 33 U.S.C. § 1342. A majority of these unauthorized discharges are from the City's combined sewer system, including pump stations, manholes, pipes, and other related appurtenances within its Wastewater Collection System. In addition, the City has had unauthorized discharges from its sanitary sewer system.

50. Each of the foregoing discharges from unauthorized point sources constitutes a separate violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a), for each day of each discharge from each location.

51. Each of the foregoing discharges constitutes a separate violation of RCW § 90.48.080 for each day of each discharge from each location.

52. Unless enjoined by an order of the Court, the City will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a) and RCW § 90.48.080.

53. The City is liable for civil penalties of \$32,500 per day for each violation occurring between March 15, 2004 and January 12, 2009; and up to \$37,500 per day for each violation occurring after January 12, 2009, pursuant to the Federal Civil Penalties Inflation Adjustment

Act of 1990 (28 U.S.C. § 2461 note; Pub. L. 101-410), as amended by the Debt Collection Improvement Act of 1996 (31 U.S.C. § 3701 note; Pub. L. 104-134); see 40 C.F.R. Part 19.

54. The City is liable to the State of Washington for civil penalties of up to \$10,000 per day for each violation, pursuant to RCW § 90.48.144.

### **THIRD CLAIM FOR RELIEF**

#### **Failure to Comply with the Proper Operation and Maintenance**

55. Paragraphs 1-54 are realleged and incorporated herein by reference.

56. At various times relevant to this Complaint, the City has failed to comply with the Proper Operation and Maintenance condition at Section S4 of its NPDES Permit and such noncompliance, in whole or in part, has caused releases of raw sewage from sewer pipes, manholes, pump stations and other “facilities” in the City’s Wastewater Collection System onto public and private property, including, but not limited to residential homes and basements. Reports prepared by the City have identified as among the causes of sewage releases from its Wastewater Collection System, breaks in sewer pipes, blockages in sewer pipes caused by grease, debris, and/or roots, and power failures at its pump stations.

57. Many of the illegal discharges alleged in Paragraphs 35, 40, and 45 above, resulted, in whole or in part, from the City’s failure to comply with the Proper Operation and Maintenance condition at Section S4 of its NPDES Permit, in violation of Section 301(a) of the CWA, 33 U.S.C. § 1311(a).

58. Each failure of the City to comply with the Proper Operation and Maintenance condition at Section S4 of its NPDES Permits constitutes a separate violation of Section 301(a)



of the CWA, 33 U.S.C. § 1311(a), for each day of each violation.

59. Each of the foregoing failures constitutes a separate violation of RCW § 90.48.080 for each day of each failure.

60. Unless enjoined by an order of the Court, the City will continue to violate Section 301(a) of the CWA, 33 U.S.C. § 1311(a) and RCW § 90.48.080.

61. The City is liable for civil penalties of \$32,500 per day for each violation occurring between March 15, 2004 and January 12, 2009; and up to \$37,500 per day for each violation occurring after January 12, 2009, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990 (28 U.S.C. § 2461 note; Pub. L. 101-410), as amended by the Debt Collection Improvement Act of 1996 (31 U.S.C. § 3701 note; Pub. L. 104-134); see 40 C.F.R. Part 19.

62. The City is liable to the State of Washington for civil penalties of up to \$10,000 per day for each violation, pursuant to RCW § 90.48.144.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs, the United States of America and the State of Washington, respectfully request that this Court provide the following relief:

1. A permanent injunction enjoining the City from any and all ongoing and future violations of the CWA, the Washington Water Pollution Control Act, and its NPDES Permit;
2. A permanent injunction directing the City to expeditiously take all steps necessary to come into permanent and consistent compliance with the CWA, the Washington Water Pollution Control Act, and its NPDES Permit;
3. A judgment assessing civil penalties against the City and in favor of the United States,

not to exceed \$32,500 per day for each violation of the CWA which occurred after March 15, 2004 through January 12, 2009, and not to exceed \$37,500 per day for each violation of the CWA which occurred after January 12, 2009;

4. A judgment assessing civil penalties against the City and in favor of the State of Washington, not to exceed \$10,000 per day for each violation of the Washington Water Pollution Control Act; and

5. Grant such other relief as this Court deems appropriate.

Dated: April 16, 2013

Respectfully submitted,

FOR THE UNITED STATES OF AMERICA:

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United States Department of Justice  
Environment and Natural Resources Division

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8

IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF WASHINGTON

---

UNITED STATES OF AMERICA,

and

THE STATE OF WASHINGTON

Plaintiffs

v.

THE CITY OF SEATTLE,  
WASHINGTON

Defendant

---

Civil Action No. 2:13-cv-678

**CONSENT DECREE**

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plan approved under this Consent Decree, in accordance with all applicable requirements of this Consent Decree, and within the specified time schedules established by and approved under this Consent Decree.

56. Late Payment of Civil Penalties. If the City fails to pay the civil penalty required to be paid under Section IX (Civil Penalties) of this Consent Decree when due, the City shall pay a stipulated penalty of \$10,000 for each Day that the payment is late.

57. Failure to Comply with the Compliance Program Requirements. The following stipulated penalties shall accrue per Day for any failure to comply with any of the Compliance Program requirements of this Consent Decree set forth in Section V.A. (Early Action CSO Control Programs and Measures), Section V.B. (Development and Implementation of the LTCP and PCMP), Section V.C. (CMOM Performance Program Plan), Section V.D. (FOG Control Program Plan); Section V.E. (Revised Floatable Solids Observation Program Plan), and Section V.F. (Joint Operations and System Optimization Plan):

<u>Period of Non-compliance</u>	<u>Stipulated Penalty</u>
1 <sup>st</sup> to 14 <sup>th</sup> Day	\$3,000 per day per violation
15 <sup>th</sup> to 30 <sup>th</sup> Day	\$4,000 per day per violation
After 31st Day and beyond	\$5,000 per day per violation

58. Failure to Comply with Other Reporting Requirements. The following stipulated penalties shall accrue per Day for any failure to comply with the reporting requirements of this Consent Decree (excluding all reporting requirements required under the Compliance Programs set forth in Section V):

<u>Period of Non-compliance</u>	<u>Stipulated Penalty</u>
1 <sup>st</sup> to 14 <sup>th</sup> Day	\$1,000 per day per violation
15 <sup>th</sup> to 30 <sup>th</sup> Day	\$1,500 per day per violation
After 31st Day and beyond	\$2,000 per day per violation



60. Dry Weather CSOs. The City shall be liable to pay a stipulated penalty of \$7,500 per Day for each Dry Weather CSO that occurs more than twenty-four (24) hours after precipitation.

61. Sewer Overflows. The City shall be liable to pay a stipulated penalty of \$2,500 per Day for each Sewer Overflow.

62. Any Other Violations of this Consent Decree. The City shall pay a stipulated penalty of \$2,000 per violation per Day for any violation of Paragraphs 4, 6, 71, and Section XIV (“Information Collection and Retention”) of the Consent Decree.

63. Stipulated penalties under this Section X shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

64. The United States, or the State, or both, may seek stipulated penalties under this Section by sending a joint written demand to the City, or by either sovereign sending a written demand to the City, with a copy simultaneously sent to the other sovereign. Either sovereign may waive stipulated penalties or reduce the amount of stipulated penalties it seeks, in the unreviewable exercise of its discretion and in accordance with this Paragraph. Where both sovereigns seek stipulated penalties for the same violation of this Consent Decree, the City shall pay 50 percent to the United States and 50 percent to the State within thirty (30) days of the joint written demand. Where only one sovereign demands stipulated penalties for a violation, and the other sovereign does not join in the demand within ten (10) Days of receiving the demand, or timely joins in the demand but subsequently elects to waive or reduce stipulated penalties for that violation, the City shall pay the stipulated penalties due for the violation to the sovereign making

the demand less any amount paid to the other sovereign within thirty (30) days of the demand. Nothing in this Section shall be construed to waive and the City expressly reserves its right to dispute whether the violation occurred and the duration of the violation pursuant to the procedures set forth in Section XII (Dispute Resolution).

65. Penalty Accrual during Dispute Resolution. Stipulated penalties shall continue to accrue as provided in Paragraph 63 during any Dispute Resolution, provided, however, the City may argue to the Court that stipulated penalties and interest should not run after the matter has been fully briefed and submitted to the Court and provided that Plaintiffs can argue the contrary. Upon completion of dispute resolution, any stipulated penalties that are ultimately determined to be due, plus interest as applicable, shall be paid within twenty (20) days of the date the Parties' agreement, the United States and State's written decision, or, if applicable, any Court order.

66. The City shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 52, except that the transmittal letter shall state for which violation(s) the penalties are being paid. The City shall pay stipulated penalties owing to the State in the manner set forth and with the confirmation notices required by Paragraph 53. A copy of the transmittal letter to the United States and other evidence of payment to the State will also be sent to the Washington's Attorney General's Office and Ecology.

67. If the City fails to pay stipulated penalties, and any accrued interest, to the United States and the State in accordance with the terms of this Consent Decree, the City shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States or the State

the City asserts such a privilege, it shall provide the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of each author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by the City. No documents, records, or other information created by or generated pursuant to the requirements of this Consent Decree, however, shall be withheld on grounds of privilege.

91. The City may also assert that information required to be provided to the United States under this Section is protected as Confidential Business Information (“CBI”) under 40 C.F.R. Part 2. As to any information that the City seeks to protect as CBI, the City shall follow the procedures set forth in 40 C.F.R. Part 2. If no claim of confidentiality accompanies documents or information when they are submitted to the United States and the State, the public may receive access to such documents or information without further notice, in accordance with 40 C.F.R. Part 2, Subpart B. The City may also assert that information required to be provided to the State under this Section is confidential under state law by following the procedures set forth in RCW 43.21A.160.

92. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or the State pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of the City to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

## **XV. FAILURE OF COMPLIANCE**

93. The United States and the State do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that the City's compliance with any aspect of this Consent Decree will result in compliance with the provisions of the CWA, 33 U.S.C. § 1251 *et seq.*, or with any other provisions of federal, state, or local laws, regulations, or permits. The City shall remain responsible for compliance with the terms of the CWA and its implementing regulations, applicable state law and regulations, its NPDES Permit, all orders issued by the State, and this Consent Decree. Nothing in this Consent Decree shall be interpreted as limiting the State's right to take enforcement action in response to any violations of the City's NPDES Permit or any orders issued by the State. The pendency or outcome of any proceeding concerning issuance, reissuance, or modification of any NPDES Permit shall neither affect nor postpone the City's duties and obligations as set forth in this Consent Decree.

## **XVI. EFFECT OF SETTLEMENT AND RESERVATION OF RIGHTS**

94. This Consent Decree resolves the civil claims of the United States and the State for the violations alleged in the Complaint filed in this action through the Date of Lodging of this Consent Decree.

95. The United States and the State reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 94. This Consent Decree shall not be construed to limit the rights of the United States or the State to obtain penalties or injunctive relief under the CWA or its implementing regulations, or under other federal or state laws, regulations, or permit conditions, except as expressly provided in Paragraph 94.

96. The United States and the State further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, the City's Wastewater Collection System, whether related to the violations addressed in this Consent Decree or otherwise.

97. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, civil penalties, or other appropriate relief relating to the City's Wastewater Collection System or the City's violations, the City shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 94.

98. This Consent Decree is not a permit, nor a modification of any permit, under any federal, state, or local laws or regulations. Nothing in this Consent Decree relieves the City of any obligations it has under any applicable federal, state, and local laws, regulations, and permits. The City may seek to admit evidence of its compliance with the Consent Decree in any subsequent proceeding. The United States and the State do not, by their consent to entry of this Consent Decree, warrant or aver in any manner that the City's compliance with any aspect of this Consent Decree will result in compliance with the CWA or the Water Pollution Control Act, and reserve all rights to object to introduction of such evidence by the City.

99. This Consent Decree does not limit or affect the rights of the Parties against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against the City, except as otherwise provided by law or by Paragraphs 94

and 100. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party, not party to this Consent Decree.

100. The Complaint and this Consent Decree shall constitute and establish continuing diligent prosecution by the United States, under Section 505(b)(1)(B) of the Clean Water Act, 33 U.S.C. § 1365(b)(1)(B), of all matters alleged in the Complaint arising from the beginning of the applicable statute of limitations through the Date of Lodging.

101. Nothing in this Consent Decree limits the rights or defenses available under Section 309(e) of the Clean Water Act, 33 U.S.C. §1319(e), in the event that the laws of the State, as currently or hereafter enacted, may prevent the City from raising the revenues needed to comply with this Consent Decree.

#### **XVII. EFFECTIVE DATE**


102. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket, provided, however, that the City hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date as specified in the City's NPDES Permit.

#### **XVIII. RETENTION OF JURISDICTION**


103. The Court shall retain jurisdiction over this case until termination of this Consent Decree for the purpose of resolving disputes arising under this Consent Decree, pursuant to Section XII (Dispute Resolution), or entering orders modifying this Consent Decree, pursuant to Section XIX (Modification), or effectuating or enforcing compliance with the terms of this Consent Decree.

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and the State of Washington v. City of Seattle, Washington (W.D. Wash.).

FOR PLAINTIFF UNITED STATES OF AMERICA:

  
IGNACIA S. MORENO  
Assistant Attorney General  
Environment and Natural Resources Division  
United States Department of Justice  
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Washington, D.C. 20044


DATE: 4/4/13

  
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DATE: 3/13/13


THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and the State of Washington v. City of Seattle, Washington (W.D. Wash.).

FOR THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

 DATE: 3/29/13  
SUSAN SHINKMAN, Director  
Office of Civil Enforcement  
Office of Enforcement and Compliance Assurance  
United States Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
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 DATE: 3/28/13  
MARK POLLINS, Director  
Water Enforcement Division  
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Office of Enforcement and Compliance Assurance  
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 DATE: 3/27/13  
LOREN DENTON, Chief  
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 DATE: 3/26/13  
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THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and the State of Washington v. City of Seattle, Washington (W.D. Wash.).

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FOR THE STATE OF WASHINGTON:

ROBERT W. FERGUSON  
ATTORNEY GENERAL

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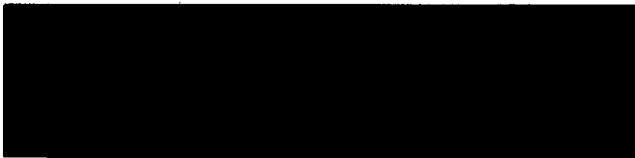
THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and the State of Washington v. City of Seattle, Washington (W.D. Wash.).

FOR THE CITY OF SEATTLE:



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DATE: 3-11-2013

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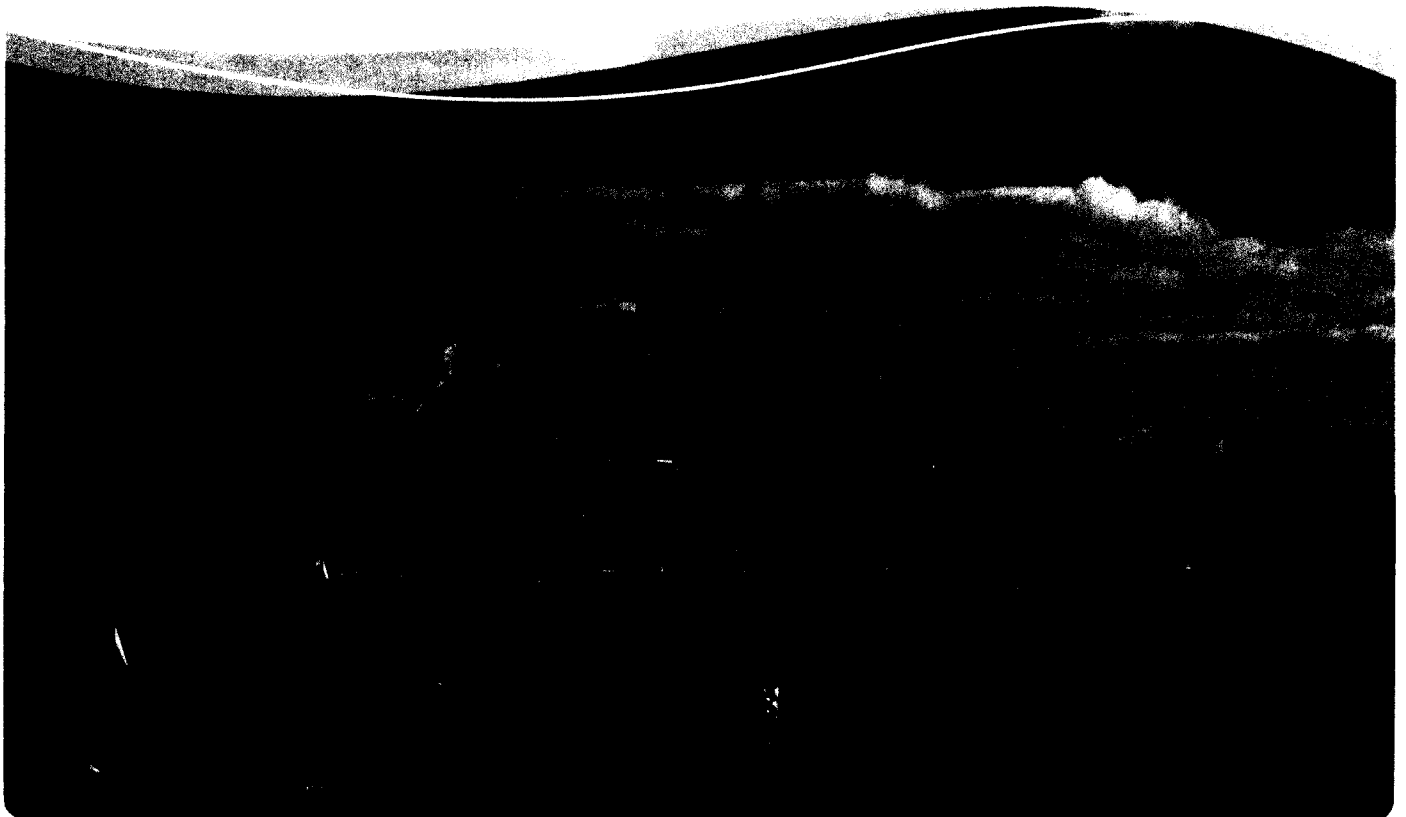
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Protecting Seattle's Waterways

# Wastewater Collection System: 2015 Annual Report

March 28, 2016



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Initially, the Control Center received SCADA information only from SPU's 68 wastewater pump stations. SPU continues to regularly analyze performance of the 68 pump stations to ensure that they are operating at their design capacity during storm events. Control Center staff respond to any alarms at the pump stations or the CSO facilities that would indicate a drop in performance or other problem. In addition, SPU monitors pump station, overflow structure, and outfall flow data as it is collected and uses the data to detect maintenance issues that may be affecting system performance.

In 2011, monitoring and controls for SPU's first sewer system facility with active controls and SCADA connectivity also were brought into the Control Center. In 2012, a second control project was completed and brought into the Control Center for full operation. The project, located in the Windermere Area (Basin 13), consisted of a motor-operated gate valve. The valve is programmed to fill or evacuate storage based on water levels in the downstream sewer (the Lake Line).

In November 2014, SPU started the on-boarding process for several additional CSO control projects. On-boarding brings new facilities into the SPU SCADA system and into the Control Center for remote monitoring and operation. Temporary flow monitoring was installed to understand the new facility performance and to inform operational changes during facility start-up. In 2015, SPU completed on-boarding two storage projects located within the Windermere and Genesee areas, conveyance facilities and a pump station rehabilitation project in the South Henderson Area area, and sewer system improvements in the Delridge area. These facilities have now entered a stabilization period that is expected to be completed in 2016. Stabilization includes monitoring and analysis to ensure the facility is functioning as intended. It is anticipated that adequate data will be collected in 2016 to complete the stabilization process.

Several additional CSO control facilities will be completed and on boarded in 2016: upgraded pump stations in Fauntleroy (Pump Station 70 in Basin 94) and Madison Park (Pump Station 50 in Basin 22), a storage facility improvement in the North Union Bay area (Basin 18), and sewer system improvements in the Leschi area (Basins 26-36). Additional temporary flow monitoring will be installed in 2016 to understand the performance of these new facilities and to inform operational changes during start-up of these facilities.

### **3.1.5 Control 5: Prevent Dry Weather Overflows**

*Prevent dry weather overflows; they are not authorized. Report any dry weather overflows within 24 hours and take prompt corrective action.*

SPU experienced three dry weather overflows (DWOs) in 2015. The first DWO began on February 27<sup>th</sup> at Outfall 127, in the South Lake Union area. It was caused by a grease blockage in a short 8-inch diameter sewer that conveys combined sewage to Wastewater Pump Station 62, and was exacerbated by 0.7 inches of rain.



Because the overflow began when it was raining, the overflow did not trigger a “dry weather alarm” with the vendor who monitors this outfall under contract to SPU. On Monday, March 2<sup>nd</sup>, SPU staff reviewed each outfall hydrograph, saw that Outfall 127 was overflowing during a period of non-precipitation, and immediately submitted a high priority work order request. SPU field crews responded, determined that there was a grease blockage in the 8-inch diameter sewer, mobilized two vacuum trucks to draw down flows in the overflow maintenance hole, removed the grease, cleaned the pipe, and used CCTV inspection to verify that the pipe was clean and normal flow had resumed.

SPU staff notified Ecology, Public Health - Seattle & King County, and the Washington State Department of Health. To prevent recurrence, SPU has increased the frequency of sewer cleaning from every 12 months to every 6 months, and is continuing to inspect South Lake Union food service establishments quarterly to help ensure grease traps are being cleaned and maintained. Based on flow monitoring data, an estimated 64,878 gallons flowed through Outfall 127 to Lake Union over a period of 70.6 hours. To provide earlier detection of DWOs, two additional actions have been taken:

- SPU's flow monitoring vendor has reconfigured their alarm system to identify any outfall overflow that lasts more than 6 hours, so that an analyst can determine whether it is a CSO and notify SPU as appropriate.
- SPU staff have identified outfalls that should trigger an alarm whenever they approach overflow conditions and have shared that information with the flow monitoring vendor.

The second DWO occurred on August 26<sup>th</sup> as SPU SCADA technicians were relocating a new Programmable Automated Controller (PAC) in an attempt to address recurring overheating problems. The technicians were using drawings submitted by the Genesee CSO Storage Project electrical subcontractor. The drawings indicated that the gate valve upstream of storage facility CSO 9 was controlled by an actuator, the actuator included built-in emergency shutdown (ESD) circuitry, the ESD was wired to a normally open contact, and therefore, when the PAC wires were removed, the gate valve would remain open, allowing sewage to flow through CSO 9 into the Lake Line and north to Pump Station 5.

Unfortunately, the drawings were outdated. Updated drawings from the subcontractor show that the ESD circuit was wired to a normally closed contact. When the technician removed the PAC wires, it caused the ESD to engage and the gate valve to close, causing sewage to back up in the sewer until it reached the top of the overflow weir and flowed through Outfall 43 into Lake Washington. Approximately 25 minutes after the gate valve closed, SPU's contract flow monitoring vendor received an alarm indicating a dry weather overflow in progress and alerted SPU staff. SPU field crews responded and manually opened the gate valve as quickly as possible.

Additional SPU staff consulted with Public Health - Seattle & King County and Seattle Department of Parks and Recreation (Parks), began posting the shoreline and collecting daily

water quality samples at multiple locations extending from the Genesee area on the north end to the Seward Park swimming beaches on the south end, and alerted the media. Based on flow monitoring data, an estimated 11,842 gallons flowed through Outfall 43 to Lake Washington over a period of 2.5 hours. To prevent recurrence, SPU has evaluated its control system and eliminated similar control configurations wherever feasible. SPU has also reviewed its contractor submittal processing procedures to ensure SCADA technicians have the most up-to-date drawings.

The third DWO occurred on September 21<sup>st</sup> and was caused by the SR-99 construction project. In July 2014, as part of constructing the SR 99 Tunnel Project Access Shaft (commonly known as the Bertha emergency access shaft), Seattle Tunnel Partners (STP) removed a portion of SPU's 21-inch diameter sewer and installed bypass pumps to convey sewage around the access shaft (which is located upstream of Overflow Structure 71B). The DWO occurred when STP's flow level sensing equipment failed. SPU received a high water alarm from its flow monitoring vendor, confirmed surcharge conditions at Overflow Structure 71B, and alerted WSDOT and STP. STP switched the bypass pump operation from automatic to manual and began cleaning the flow level sensing equipment so that it would work as intended. Once the equipment was cleaned, bypass pump operations returned to normal.

SPU consulted with Public Health - Seattle & King County, who advised that posting of the waterfront was not necessary. Based on flow monitoring data, an estimated 878 gallons flowed through Outfall 71 to Elliott Bay over a period of 12 minutes. To discourage recurring noncompliance, SPU issued STP a Notice of Violation (NOV) and a \$1,500 penalty.

SPU also experienced 3 known exacerbated CSOs in 2015 (wet weather overflows at CSO outfalls that, while already discharging as a result of precipitation, were worsened by mechanical failures, blockages, equipment outages, or power outages). These three overflows (a 5,162 gallon overflow on January 18, a 3,431 gallon overflow on March 15, and a 2,232 gallon overflow on November 15) were at Outfall 22 in Madison Park and were exacerbated by underperforming air lift style pumps at Wastewater Pump Station 50. Design is underway on a pump station rehabilitation project that will replace the air lift style pumps with more reliable submersible pumps. Construction is scheduled for completion in 2016.

To help prevent DWOs and exacerbated CSOs, each combined sewer system overflow location is configured with an alarm that is triggered if there are likely overflow conditions. The alarms alert analysts and/or field crews to assess the situation and take corrective action if possible.

In addition, whenever SPU experiences a DWO or exacerbated CSO, SPU investigates to identify the cause and takes action to address the overflow and reduce or eliminate the probability of recurrence. Investigation includes manual inspection of the site where the overflow occurred, CCTV inspection of adjacent pipe, and review of SCADA data. Whenever possible, the outfall structure and adjacent pipes are cleaned immediately following the event, and SPU reviews and analyzes the cleaning results.

SPU holds monthly “after action” review meetings to learn from our experiences and apply any lessons learned toward preventing additional SSOs, DWOs, and exacerbated CSOs. SPU also looks at the rolling history of DWOs and exacerbated CSOs to determine if there are any patterns and if a systematic solution is required. For example, in past years pump station electrical outages contributed to DWOs, so SPU implemented projects to ensure that each pump station has either an on-site backup generator or an emergency plug that allows a portable generator to be easily placed in service.

A summary of the DWOs and exacerbated CSOs from 2007-2015 is included in Table 3-2.

**Table 3-2. Dry Weather Overflows (DWOs) and Combined Sewer Overflows (CSOs) Exacerbated by System Maintenance Issues 2007 – 2015**

Year	DWOs		CSOs Exacerbated by System Maintenance Issues <sup>1</sup>	
	No. of Overflows	Volume (gallons)	No. of Overflows	Volume (gallons)
2007	7	499,264	--	--
2008	1	148,282	8	470,444
2009	1	3,509	3	156,153
2010	0	0	13	12,320,400
2011	0	0	10	2,317,068
2012	0	0	11	5,846,647
2013	3 <sup>2</sup>	123,670	5	12,894
2014	1	4,767	16	9,349,549
2015	3 <sup>3</sup>	77,598	3	10,825

<sup>1</sup> CSOs exacerbated by system maintenance issues were not reported prior to 2008. The 'exacerbated CSOs' listed in this table are listed as CSO discharges in Table 5-4 and are included in the discharges summarized in Tables 5-5, 5-6, 5-7, and 5-8.

<sup>2</sup> None of these DWOs were caused by SPU or any other City entity.

<sup>3</sup> One of these DWOs was caused by a non-City entity.

### 3.1.6 Control 6: Control Solids and Floatable Materials

*Implement measures to control solid and floatable materials in CSOs.*

SPU implements several measures to control floatables:

Catch basins are designed to prevent floatables from entering the system. Specifically, SPU's catch basins are designed to overflow only when the water level in the catch basin is well above the overflow pipe opening. Because floatables remain on the water surface, they are trapped in the catch basins. Catch basins are inspected and cleaned regularly to remove debris and potential floatables. Catch basin inspection, cleaning, and rehabilitation metrics are included in Table 3-1.

SPU recently launched a Make It a Straight Flush pilot outreach campaign to educate customers that only toilet paper and human waste should be flushed down the toilet.

In addition, the City of Seattle runs several solid waste and city cleanup programs to prevent and reduce the amount of street litter, including:

- Street sweeping, including increased efforts for Fall leaf pickup,
- Spring clean,
- Storm drain stenciling,
- Event recycling,
- Public litter and recycling cans,
- Waste free holidays,
- Product bans, and
- Illegal dumping investigation and response.

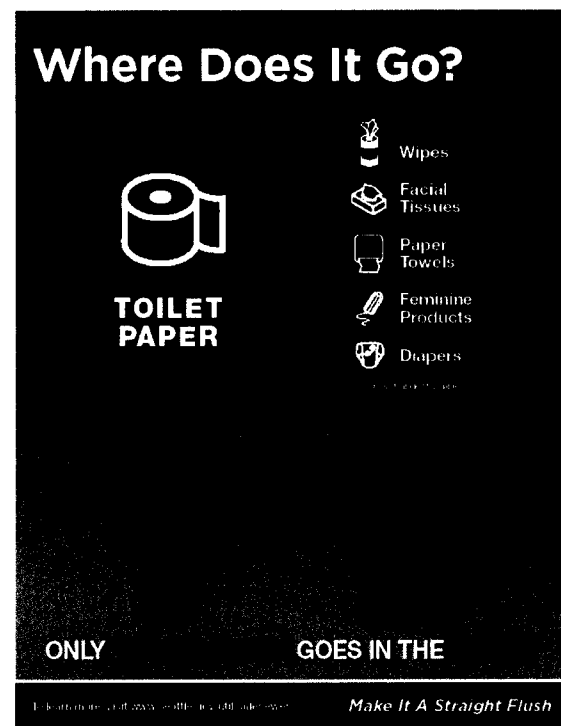


Figure 3-2. Make It a Straight Flush Campaign Poster

### 3.1.7 Control 7: Prevent Pollution

*Implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.*

SPU conducts multiple pollution prevention programs to keep contaminants from entering the sewer system and subsequently being discharged in sewage overflows. Pollution prevention programs performed by SPU in 2014 include:

procedures. In 2016, SPU plans to develop a new SSO Tracking software application to improve SSO investigation and reporting. SPU will also modify the SSO investigation and reporting process to reflect new NPDES permit requirements.

### 3.2.8 SSO Performance

There were 102 sewer overflows in 2015, and they are summarized by cause in Table 3-3. Factors causing the greatest number of sewer overflows were extreme weather events (storms with recurrence intervals of at least 25 years), which caused 28 sewer overflows; roots in the sewer, which led to 18 sewer overflows; and capacity-related overflows, which caused 20 sewer overflows. Factors causing zero or very low numbers of sewer overflows were system operator error, power outages, other agency construction, pump station capacity, private construction and vandalism.

**Table 3-3. 2015 Sewer Overflows by Category**

Category	Primary Cause of Sewer Overflows	Number of 2015 Sewer Overflows
1	Roots	18
2	FOG	4
3	Debris	4
4	Structural – gravity	6
5	Structural – force main	2
6	Capacity	20
7	Pump Station – mechanical	2
8	Pump Station - capacity	1
9	Power Outages	0
10	Operator Error	0
11	Maintenance Error	6
12	City Construction	5
13	New Facility Startup	2
14	Private Side Sewer Issue	2
15	Private Construction	1
16	Other Agency Construction	0
17	Vandalism	1
18	Extreme Weather Event	28
	Total for Categories 1 – 18	102
	Total for Categories 1 – 14	72

In addition to these inventory inspections, 307 regulatory compliance inspections were completed in 2015. In accordance with the risk-based strategy in the approved SPU Fats, Oils, and Grease Control Program Plan, 70 percent of these inspections were conducted at facilities connected to a sewer mainline assigned a Priority 1 or Priority 2 hotspot designation. These designations are assigned whenever FOG is the primary or secondary cause of a sewer overflow, or when CCTV inspections find excessive FOG accumulation. (If more than 50 percent of the sewer is obstructed, it is a Priority 1 hotspot. If more than 20 percent and less than 50 percent of the sewer is obstructed, it is a Priority 2 hotspot.) The 307 regulatory compliance inspections resulted in 140 enforcement actions:

- 55 requiring grease interceptor maintenance,
- 82 requiring installation of grease interceptors and plumbing modifications, and
- 3 requiring a plumbing modification.

Inspectors also conducted door to door residential outreach in residential areas with Priority 1 and Priority 2 hotspots. In 2015, the team conducted outreach to 1,185 single family dwellings and multi-family properties. Additionally, 19,760 residential FOG fliers were distributed in response to customer service inquiries primarily initiated by multi-family housing property owners and managers. These inquiries were a result of an expanded effort to educate this group through the FOG program interaction with the City of Seattle multifamily conservation initiative and by attending events such as the Seattle Trends, Rental Housing Management Conference and Tradeshow. As a result of these efforts, the number of requests increased significantly in 2015, from 6,442 in 2014 and 2,594 in 2012.

2016 FOG Control Program efforts will include the following activities:

- Regulatory compliance inspections of facilities connected to Priority 1, 2, and 3 hotspots.
- Focused enforcement at facilities that discharge to high priority sewer mainlines and that have a high risk of discharging high levels of FOG. This includes working with the 64 FSEs located at the historic Pike Place Market.
- Clarification of existing City code through the development of a Directors Rule.
- Continued expansion of the residential outreach initiative.

### **3.4 Annual Review of Operations and Maintenance Manuals**

In 2014, SPU reviewed all Drainage and Wastewater (DWW) Operation and Maintenance (O&M) SOPs and Job Plans and revised the Sewer Overflow Response SOPs. In 2015, SPU finalized a CCTV SOP, provided sewer cleaning training for all crews, provided refresher training on the Sewer Overflow Response SOP, and provided Sewer Overflow Response pump and bypass training for the crew chiefs. In addition, SPU submitted O&M manuals to Ecology and EPA for the new operable CSO storage facilities at Windermere and Genesee.

Station #	Frequency					Overflow Duration (Hours)					Overflow Volume (Gallons per Year)					Receiving Waters
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	
111	2	1	3	3	3	17.85	26.23	6.37	16.59	6.57	723	314,968	11,507	146,654	1,056,402	Duwamish River
120	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
121	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
124	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
127	0	0	0	0	1	0.00	0.00	0.00	0.00	70.60	0	0	0	0	64,878	Lake Union
129	0	0	2	0	0	0.00	0.00	49.97	0.00	0.00	0	0	64,910	0	0	Lake Union
130	0	0	0	0	3	0.00	0.00	0.00	0.00	0.82	0	0	0	0	268,332	Lake Union
131	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
132	1	0	2	0	3	0.08	0.00	0.23	0.00	1.58	2,559	0	3,986	0	1,014,884	Lake Union
134	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
135	0	0	0	0	2	0.00	0.00	0.00	0.00	0.90	0	0	0	0	9,889	Lake Union
136	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
138	3	2	2	3	7	15.05	12.25	3.50	8.00	17.48	124,027	649,289	119,989	264,644	721,977	Portage Bay
139	1	2	1	2	6	0.03	10.60	1.43	3.33	16.38	2,638	320,403	47,561	47,515	1,171,445	Portage Bay
140	2	4	5	13	10	0.15	17.96	8.05	9.72	28.25	3,107	437,331	147,407	341,627	695,688	Portage Bay
141	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Portage Bay
144	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
145	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
146	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Union
147	40	47	27	49	32	391.91	672.19	238.15	589.00	495.17	9,748,238	14,636,073	4,800,690	12,316,618	16,682,352	Lake Union
148	2	0	0	0	1	0.69	0.00	0.00	0.00	1.30	6,883	0	0	0	1,400	Lake Washington Ship Canal
150/151	25	31	14	34	28	208.64	378.01	114.80	268.14	387.00	2,497,818	4,871,447	1,737,206	3,543,723	2,539,871	Salmon Bay
152	48	57	44	53	34	640.68	1098.59	440.30	900.65	713.68	40,634,362	52,382,276	13,192,217	41,104,401	36,195,281	Salmon Bay
161	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0	0	Lake Washington
165	0	2	1	2	1	0.00	10.43	0.25	1.34	1.48	0	54,470	4,387	8,970	16,634	Lake Washington
168	0	2	0	1	2	0.00	47.24	0.00	13.73	84.33	0	5,364,038	0	1,092,208	7,718,986	Longfellow Creek
169	2	1	0	1	2	6.50	16.03	0.00	23.15	105.93	614,501	2,587,257	0	604,990	6,162,245	Longfellow Creek
170	0	1	0	0	0	0.00	0.90	0.00	0.00	0.00	0	12,286	0	0	0	Longfellow Creek

Table 5-7. 2011-2015 Summary Comparison of CSOs by Receiving Water

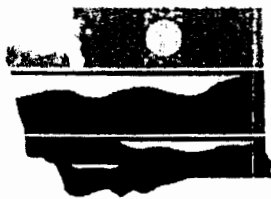
Receiving Waters of Overflow	Overflow Frequency (# per Year)					Overflow Event Duration (Hours)					Overflow Volume (Gallons per Year)				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Duwamish River	2	1	3	3	3	18	26	11	17	7	723	314,968	11,507	146,654	1,056,402
East Waterway	5	4	3	6	9	64	14	9	30	82	767,499	352,041	232,587	288,804	673,362
Elliott Bay	8	9	12	4	19	40	39	12	5	15	187,631	3,679,209	1,227,201	269,938	1,318,790
Lake Union	41	47	33	49	45	392	672	290	589	571	9,750,797	14,636,073	4,872,642	12,316,618	18,283,461
Lake Washington	96	149	84	191	116	1,006	1,518	462	1,367	1,709	14,867,691	44,714,009	11,216,814	38,750,702	50,779,955
Lake Washington - Ship Canal	12	17	7	20	16	94	267	25	89	115	5,884,244	10,262,141	2,775,594	8,763,659	13,557,080
Longfellow Creek	2	4	0	2	4	7	64	0	37	190	614,501	7,963,581	0	1,697,198	13,881,231
Portage Bay	6	8	8	18	23	15	41	13	21	62	129,772	1,407,023	314,957	653,786	2,589,110
Puget Sound	1	1	1	0	0	0.03	0.22	2	0	0	744	4,276	803	0	0
Salmon Bay	76	96	60	94	66	875	1,493	561	1,175	1,108	43,307,240	58,077,041	14,988,321	44,942,318	38,935,987
Union Bay	8	14	8	13	13	40	132	22	61	48	1,967,739	10,327,113	1,857,024	3,929,276	3,771,925
West Waterway	3	5	0	6	4	30	30	0	73	74	715,775	2,494,862	0	3,827,730	4,855,651
<b>TOTAL:</b>	260	355	219	406	318	2,581	4,296	1,407	3,464	3,981	78,194,356	154,232,337	37,497,450	115,586,683	149,702,956



**Table 5-8. Outfalls Meeting Performance Standard for Controlled CSOs Based on Flow Monitoring Results and Modeling**

[illegible]

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DEPARTMENT OF  
**ECOLOGY**  
State of Washington

FEB - 9 2015



**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

Nancy Ahern, Deputy Director  
City of Seattle  
Utilities Systems Management Branch  
P.O. Box 34018  
Seattle, Washington 98124-4018

Re: United States of America and the State of Washington v. The City of Seattle  
Consent Decree (Consent Decree), Civil Action No. 2:13-cv-00678-JCC  
Demand for Payment of Stipulated Penalties

Dear Ms. Ahern:

On July 3, 2013, the EPA, the Washington State Department of Ecology, and the City of Seattle (Seattle), entered into the above-mentioned Consent Decree to resolve alleged violations of the Clean Water Act, including violations of your National Pollutant Elimination System Permit, and sanitary sewer overflow violations.

Section X of the Consent Decree requires Seattle to pay stipulated penalties for certain violations of the Consent Decree. The occurrence of a Sewer Overflow, as defined by Paragraph 9.aa of the Consent Decree, is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$2,500 per day of each sewer overflow. See, Paragraph 61 of the Consent Decree. During the timeframe of July 3, 2013 and March 31, 2014, there were two overflows in which EPA and Ecology are choosing to issue stipulated penalties. The first occurred on September 5, 2013 with a total overflow of 48,250 gallons. The second occurred March 5, 2014 with a total overflow of 39,000 gallons.

Paragraph 64 of the Consent Decree allows the United States, the State, or both to seek stipulated penalties by sending a written demand to the City; and further provides that when a joint demand for stipulated penalties is made, that the City shall pay 50% of the demanded amount to the United States and 50% to the State.

As a result of the two identified sewer overflows pursuant to this letter, EPA and Ecology are jointly issuing a demand for payment of \$5,000 as a result of the two sewer overflows. Accordingly, Seattle is required to pay \$2,500 to EPA, and \$2,500 to Ecology.

Payment is due within thirty days of the date this written demand is received by Seattle, see Paragraph 64 of the Consent Decree, and payment shall be made in accordance with paragraphs 52 and 53 of the Consent Decree, see Paragraph 66 of the Consent Decree. Please note that the payment to the United States is by Electronic Fund Transfer, and notice of such transfer as required by Paragraph 52 shall be sent to the following address:

EPA Cincinnati Finance Office  
26 Martin Luther King Drive  
Cincinnati, OH 45268

The notice that is sent to the above address shall include a copy of the electronic fund transfer authorization and a transmittal letter that states the payment is made for a civil penalty owed pursuant to the Consent Decree and shall reference the civil action number for this matter and the DOJ case number 90-5-1-1-1006. See, Paragraph 52 of the Consent Decree.

Consistent with Paragraph 53, payment to the State may be by check payable to "Department of Ecology" and mailed to:

Department of Ecology  
Cashiering Unit  
P.O. Box 47611  
Olympia, WA 98504-7611

Payment to the State must be accompanied by a transmittal letter that states the payment is for a civil penalty and owed pursuant to the Consent Decree and shall reference the civil action number for this matter. See, Paragraph 53 of the Consent Decree.

In addition, the notices provided to the United States and the State must also satisfy the notice requirement of Section XIII of the Consent Decree (Notices).

For written notification or communication under Section XIII and Paragraph 83 of the Consent Decree, please use the following individuals as to the United States:

For DOJ:

Chief, Environmental Enforcement Section  
Environment & Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
Ph: 202.514.5271  
Fax: 202.514.0097

Kathryn C. Macdonald, Attorney  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
kathryn.macdonald@usdoj.gov  
Ph: 202.353.7397  
Fax: 202.514.0097

For EPA:

Ted Yackulic  
Assistant Regional Counsel  
U.S. EPA, Region 10  
1200 6th Ave, Suite 900 (ORC-158)  
Seattle, Washington 98101  
[yackulic.ted@epa.gov](mailto:yackulic.ted@epa.gov)  
Ph: 206.553.1218  
Fax: 206.553.0163

Rob Grandinetti  
NPDES Compliance Officer  
U.S. EPA, Region 10  
1200 6th Ave, Suite 900 (OCE-133)  
Seattle, Washington 98101  
[grandinetti.robert@epa.gov](mailto:grandinetti.robert@epa.gov)  
Ph: 509.376.3748  
Fax: 509.376.2396

For Ecology:

Mark Henley  
Municipal Unit Supervisor  
Washington State Department of Ecology  
Northwest Regional Office  
3190 - 160th Ave. SE  
Bellevue, WA 98008-5452

For the State:

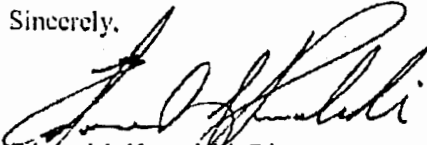
Ronald L. Lavigne  
Senior Counsel  
Attorney General of Washington  
Ecology Division  
P.O. Box 40117  
Olympia, WA 98504

If Seattle believes the amount assessed is incorrect, Seattle may invoke the dispute resolution procedures under Section XII of the Consent Decree. As part of your statement of matters in dispute, please include the sanitary sewer overflow or overflows Seattle wishes to dispute, and Seattle's reasons for believing the assessed amount is incorrect.

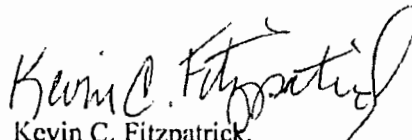
In accordance with Section X, Paragraph 64, all penalties which are not in dispute are due and payable to the United States and Ecology within 30 days of receipt of this letter.

Should you have any questions regarding this letter, you may reach Edward Kowalski at (206) 553-6695, Mark Henley at (425) 649-7103, or have your counsel contact Ted Yackulic, Assistant Regional Counsel, at (206) 553-1218, or Ronald Lavigne, at 360-586-6751.

Sincerely,



Edward J. Kowalski, Director  
Office of Compliance and Enforcement  
Environmental Protection Agency



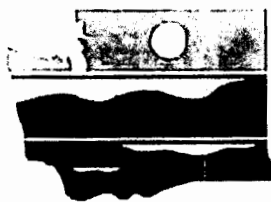
Kevin C. Fitzpatrick,  
Water Quality Section Manager  
Washington Department of Ecology

Enclosure

cc: Amy Jankowiak, Ecology Northwest Regional Office ✓  
Mark Henley, Ecology Northwest Regional Office  
Alison Evans, Ecology Northwest Regional Office  
Ronald Lavigne, Attorney General of Washington Ecology Division  
Kathryn Macdonald, U.S. Dept. of Justice



ZZ



DEPARTMENT OF  
**ECOLOGY**  
State of Washington



NOV 2 - 2015

**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Susan Sanchez, Deputy Director  
City of Seattle  
Utilities Systems Management Branch  
PO Box 34018  
Seattle, WA 98124-4018

Re: United States of America and the State of Washington v. The City of Seattle  
Consent Decree (Consent Decree), Civil Action No. 2:13-cv-00678-JCC  
Demand for Payment of Stipulated Penalties

Dear Ms. Sanchez:

On July 3, 2013, the EPA, the Washington State Department of Ecology, and the City of Seattle (Seattle) entered into the above-mentioned Consent Decree to resolve alleged violations of the Clean Water Act, including violations of your National Pollutant Elimination System Permit (NPDES Permit) and sanitary sewer overflow violations.

Section X of the Consent Decree requires Seattle to pay stipulated penalties for certain violations of the Consent Decree. The occurrence of a dry weather CSO, as defined by Paragraph 9.o of the Consent Decree, is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$7,500 per day for each dry weather CSO that occurs. See Paragraph 60 of the Consent Decree. The occurrence of a Sewer Overflow, as defined by Paragraph 9.aa of the Consent Decree, is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$2,500 per day of each sewer overflow. See Paragraph 61 of the Consent Decree. Failure to comply with reporting requirements of the Consent Decree is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$1,000 per day per violation. See Paragraphs 58 and 59 of the Consent Decree. During the time frame of April 1, 2014 through December 31, 2014, there were two sewer overflows, one dry weather CSO and one late notification in which EPA and Ecology are choosing to issue stipulated penalties. The dry weather CSO occurred on May 14, 2014, with a total overflow of about 4,700 gallons to Lake Washington. The first sewer overflow occurred on August 20, 2014, with an unknown overflow to the edge of the Madison Valley Pea Patch. The second sewer overflow occurred on November 28, 2014, with a total overflow of about 39,000 gallons to Lake Washington and timely notification, per the Consent Decree Paragraph 45, was not completed as required, but rather four days late.

Paragraph 64 of the Consent Decree allows the United States, the State, or both to seek stipulated penalties by sending a written demand to the City; and further provides that when a joint demand for stipulated penalties is made that the City shall pay 50% of the demanded amount to the United States and 50% to the State.

As a result of the two identified sewer overflows, one dry weather CSO and late notification pursuant to this letter, EPA and Ecology are jointly issuing a demand for payment of \$16,500. Accordingly, Seattle is required to pay \$8,250 to EPA, and \$8,250 to Ecology.



Payment is due within thirty days of the date this written demand is received by Seattle, see Paragraph 64 of the Consent Decree, and payment shall be made in accordance with Paragraphs 52 and 53 of the Consent Decree, see Paragraph 66 of the Consent Decree. Please note that the payment to the United States is by Electronic Fund Transfer, and notice of such transfer as required by Paragraph 52 shall be sent to the following address:

EPA Cincinnati Finance Office  
26 Martin Luther King Drive  
Cincinnati, OH 45268

The notice that is sent to the above address shall include a copy of the electronic fund transfer authorization and a transmittal letter that states the payment is made for a civil penalty owed pursuant to the Consent Decree and shall reference the civil action number for this matter and the DOJ case number 90-5-1-1-1006. See Paragraph 52 of the Consent Decree.

Consistent with Paragraph 53, payment to the State may be by check payable to "Department of Ecology" and mailed to:

Department of Ecology  
Cashiering Unit  
P.O. Box 47611  
Olympia, WA 98504-7611

Payment to the State must be accompanied by a transmittal letter that states the payment is for a civil penalty and owed pursuant to the Consent Decree and shall reference the civil action number for this matter. See Paragraph 53 of the Consent Decree.

In addition, the notices provided to the United States and State must also satisfy the notice requirement of Section XIII of the Consent Decree (Notices).

For written notification or communication under Section XIII and Paragraph 83 of the Consent Decree, please use the following individuals as to the United States:

For DOJ:

Chief, Environmental Enforcement Section  
Environment & Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
Ph: 202.514.5271  
Fax: 202.514.0097

Kathryn C. Macdonald, Attorney  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
kathryn.macdonald@usdoj.gov  
Ph: 202.353.7397  
Fax: 202.514.0097

For EPA:

Ted Yackulic  
Assistant Regional Counsel  
U.S. EPA, Region 10  
1200 6<sup>th</sup> Avenue, Suite 900 (ORC-158)  
Seattle, Washington 98101  
yackulic.ted@epa.gov  
Ph: 206.553.1218  
Fax: 206.553.0163

Rob Grandinetti  
NPDES Compliance Officer  
U.S. EPA, Region 10  
1200 6<sup>th</sup> Avenue, Suite 900 (OCE-133)  
Seattle, Washington 98101  
grandinetti.robert@epa.gov  
Ph: 509.376.3748  
Fax: 509.376.2396

For Ecology:

Mark Henley  
Municipal Unit Supervisor  
Washington State Department of Ecology  
Northwest Regional Office  
3190 - 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

For the State:

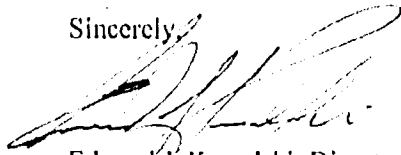
Ronald L. Lavigne  
Senior Counsel  
Attorney General of Washington  
Ecology Division  
P.O. Box 40117  
Olympia, WA 98504

If Seattle believes the amount assessed is incorrect, Seattle may invoke the dispute resolution procedures under Section XII of the Consent Decree. As part of your statement of matters in dispute, please include the sanitary sewer overflow or overflows Seattle wishes to dispute, and Seattle's reasons for believing the assessed amount is incorrect.

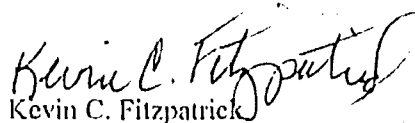
In accordance with Section X, Paragraph 64, all penalties which are not in dispute are due and payable to the United States and Ecology within 30 days of receipt of this letter.

Should you have any questions regarding this letter, you may reach Edward Kowalski at (206) 553-6695, Mark Henley at (425) 649-7103, or have your counsel contact Ted Yackulic, Assistant Regional Counsel, at (206) 553-1218, or Ronald Lavigne at 360-586-6751.

Sincerely,



Edward J. Kowalski, Director  
Office of Compliance and Enforcement  
Environmental Protection Agency

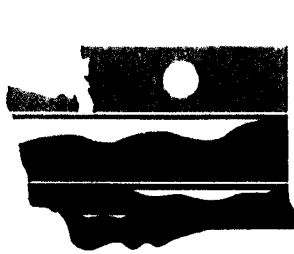


Kevin C. Fitzpatrick  
Water Quality Section Manager  
Washington Department of Ecology

Enclosure

cc: Betty Meyer, City of Seattle  
Amy Jankowiak, Ecology Northwest Regional Office  
Mark Henley, Ecology Northwest Regional Office  
Shawn McKone, Ecology Northwest Regional Office  
Ronald Lavigne, Attorney General of Washington Ecology division  
Kathryn Macdonald, U.S. Dept. of Justice

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DEPARTMENT OF  
**ECOLOGY**  
State of Washington



**CERTIFIED MAIL – RETURN RECEIPT REQUESTED**

Madeline Goddard, Deputy Director  
City of Seattle  
Drainage and Wastewater Line of Business  
PO Box 34018  
Seattle, WA 98124-4018

Re: United States of America and the State of Washington v. The City of Seattle  
Consent Decree (Consent Decree), Civil Action No. 2:13-cv-00678-JCC  
Demand for Payment of Stipulated Penalties

Dear Ms. Goddard:

On July 3, 2013, the EPA, the Washington State Department of Ecology, and the City of Seattle (Seattle) entered into the above-mentioned Consent Decree to resolve alleged violations of the Clean Water Act, including violations of your National Pollutant Elimination System Permit (NPDES Permit) and sanitary sewer overflow violations.

Section X of the Consent Decree requires Seattle to pay stipulated penalties for certain violations of the Consent Decree. The occurrence of a dry weather CSO, as defined by Paragraph 9 of the Consent Decree, is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$7,500 per day for each dry weather CSO that occurs. See Paragraph 60 of the Consent Decree. The occurrence of a Sewer Overflow, as defined by Paragraph 9.aa of the Consent Decree, is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$2,500 per day of each sewer overflow. See Paragraph 61 of the Consent Decree. Failure to comply with reporting requirements of the Consent Decree is a violation that gives rise to Seattle's obligation to pay a stipulated penalty of \$1,000 per day per violation. See Paragraphs 45, and 58-61 of the Consent Decree.

During the time frame of January 1, 2015 and December 31, 2015, there were seven sewer overflows, two dry weather CSO and one late notification in which EPA and Ecology are choosing to issue stipulated penalties.

Date of Incident	Location of Incident	Description	Stipulated Penalty Value
3/15/2015	CSO 9A/MH11 (ERTS 655502)	~9,320 gallons to Lake Washington	\$2,500
8/14/2015	CSO 2/near Delridge Storage (ERTS 658856)	~30,000 gallons to Longfellow Creek	\$2,500
9/5/2015	Outfall 62 (ERTS 659516)	~47,935 gallons to Puget Sound *	\$2,500
10/10/2015	Outfall 62 (ERTS 660629)	~14,805 gallons to Puget Sound *	\$2,500
10/30/2015	Near 45 <sup>th</sup> St (ERTS 660443)	~32,000 gallons to Lake Washington Ship Canal	\$2,500
11/15/2015	CSO 2/near Delridge Storage (ERTS 660743)	~234,000 gallons to Longfellow Creek	\$2,500
12/9/2015 and 12/16/2015	Near Pump Station 30 (ERTS 661381 and 660743)	~7,200 and ~300 gallons to Puget Sound	\$2,500
2/27/2015	Outfall 127 (ERTS 655145)	~64,878 gallons to Lake Union	\$7,500
8/26/2015	CSO 9/Genesee CSO Storage Project (ERTS 659108)	~11,800 gallons to Lake Washington	\$7,500

\* This is the estimated maximum discharge where the majority of the flow continued past the maintenance hole and emerged from either the hole in the crown of the outfall or the terminal end and the respective volumes cannot be estimated.

Location of Incident	Date of Incident	Date Discovered	Date of Notification to Ecology/EPA	Stipulated Penalty Value
Near Alaska Way Seawall Project (ERTS 657639)	6/19/2015	6/19/2015	6/23/2015	\$1,000

**Total Stipulated Penalty: \$33,500**

Paragraph 64 of the Consent Decree allows the United States, the State, or both to seek stipulated penalties by sending a written demand to the City; and further provides that when a joint demand for stipulated penalties is made that the City shall pay 50% of the demanded amount to the United States and 50% to the State.

As a result of the seven identified sewer overflows, two dry weather CSOs and late notification pursuant to this letter, EPA and Ecology are jointly issuing a demand for payment of \$33,500. Accordingly, Seattle is required to pay \$16,750 to EPA, and \$16,750 to Ecology.

Payment is due within thirty days of the date this written demand is received by Seattle, see Paragraph 64 of the Consent Decree, and payment shall be made in accordance with Paragraphs 52 and 53 of the Consent Decree, see Paragraph 66 of the Consent Decree. Please note that the payment to the United States is by Electronic Fund Transfer, and notice of such transfer as required by Paragraph 52 shall be sent to the following address:

EPA Cincinnati Finance Office  
26 Martin Luther King Drive  
Cincinnati, OH 45268

The notice that is sent to the above address shall include a copy of the electronic fund transfer authorization and a transmittal letter that states the payment is made for a civil penalty owed pursuant to the Consent Decree and shall reference the civil action number for this matter and the DOJ case number 90-5-1-1-1006. See Paragraph 52 of the Consent Decree.

Consistent with Paragraph 53, payment to the State may be by check payable to "Department of Ecology" and mailed to:

Department of Ecology  
Cashiering Unit  
P.O. Box 47611  
Olympia, WA 98504-7611

Payment to the State must be accompanied by a transmittal letter that states the payment is for a civil penalty and owed pursuant to the Consent Decree and shall reference the civil action number for this matter. See Paragraph 53 of the Consent Decree.

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For DOJ:

Chief, Environmental Enforcement Section  
Environment & Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
Ph: 202.514.5271  
Fax: 202.514.0097

Kathryn C. Macdonald, Attorney  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044-7611  
kathryn.macdonald@usdoj.gov  
Ph: 202.353.7397  
Fax: 202.514.0097

For EPA:

Ted Yackulic  
Assistant Regional Counsel  
U.S. EPA, Region 10  
1200 6<sup>th</sup> Avenue, Suite 900 (ORC-158)  
Seattle, WA 98101  
[yackulic.ted@epa.gov](mailto:yackulic.ted@epa.gov)  
Ph: 206.553.1218  
Fax: 206.553.0163

Rob Grandinetti  
NPDES Compliance Officer  
U.S. EPA, Region 10  
1200 6<sup>th</sup> Avenue, Suite 900 (OCE-133)  
Seattle, WA 98101  
[grandinetti.robert@epa.gov](mailto:grandinetti.robert@epa.gov)  
Ph: 509.376.3748  
Fax: 509.376.2396

For Ecology:

Mark Henley  
Water Quality Section Manager  
Washington State Department of Ecology  
Northwest Regional Office  
3190 - 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

For the State:

Ronald L. Lavigne  
Senior Counsel  
Attorney General of Washington  
Ecology Division  
P.O. Box 40117  
Olympia, WA 98504

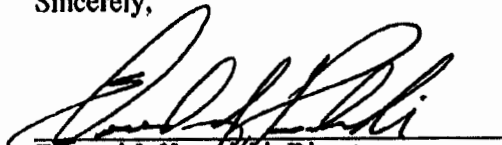
If Seattle believes the amount assessed is incorrect, Seattle may invoke the dispute resolution procedures under Section XII of the Consent Decree. As part of your statement of matters in dispute, please include the sanitary sewer overflow or overflows Seattle wishes to dispute, and Seattle's reasons for believing the assessed amount is incorrect.

In accordance with Section X, Paragraph 64, all penalties which are not in dispute are due and payable to the United States and Ecology within 30 days of receipt of this letter.

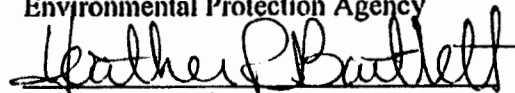
Should you have any questions regarding this letter, you may reach Edward Kowalski at (206) 553-6695, Mark Henley at (425) 649-7103, or have your counsel contact Ted Yackulic, Assistant Regional Counsel, at (206) 553-1218, or Ronald Lavigne at 360-586-6751.

Sincerely,

Date: 11/17/2016

  
Edward J. Kowalski, Director  
Office of Compliance and Enforcement  
Environmental Protection Agency

Date: 11/21/16

  
Heather R. Bartlett  
Water Quality Program Manager  
Washington Department of Ecology

Enclosure

cc: Betty Meyer, City of Seattle  
Amy Jankowiak, Ecology Northwest Regional Office  
Mark Henley, Ecology Northwest Regional Office  
Shawn McKone, Ecology Northwest Regional Office  
Ronald Lavigne, Attorney General of Washington Ecology division  
Kathryn Macdonald, U.S. Dept. of Justice

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**City of Seattle**  
Seattle Public Utilities

May 27, 2016

Ms. Chris Smith  
WPLCS Coordinator, Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Ave SE  
Bellevue, WA 98008-5452

**RE: April 2016 Combined Sewer Overflow Discharge Monitoring Report**

Dear Ms. Smith:

This letter is in response to requirements in NPDES Permit No. WA0031682, Section S3.A, that refer to monthly combined sewer overflow reporting. Enclosed is the April 2016 Combined Sewer Overflow Discharge Monitoring Report that includes data from April 1 through April 30, 2016.

During April 2016, there were 9 recorded combined sewer overflows, discharging a total of approximately 0.27 million gallons of combined sewage. These overflows occurred during rain events and began on April 3, 4, 12, and 24. In addition, there was a dry weather overflow from Outfall 29 that occurred on April 8 when an SPU construction contractor used an unapproved bypass system downstream of Outfall 29 (see ERTS #664195). An estimated 336 gallons of combined sewage flowed through Outfall 29 into Lake Washington.

If you have any questions regarding this report, please contact Wastewater Regulatory Compliance Manager Betty Meyer at (206) 386-1999 or email her at [betty.meyer@seattle.gov](mailto:betty.meyer@seattle.gov).

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment, for knowing violations.

Sincerely,

Madeline Fong Goddard, P.E.  
Deputy Director  
Drainage and Wastewater Line of Business

cc: Shawn McKone, Department of Ecology  
Mark Henley, Department of Ecology  
CSO Reduction Program Staff, Seattle Public Utilities

Ray Hoffman, Director  
Seattle Public Utilities  
PO Box 34018  
Seattle, WA 98124-4018

Tel (206) 684-5851  
Fax (206) 684-4631  
TDD (206) 233-7241  
<http://www.seattle.gov/util>

**CSO Report Summary:**

12	02, 03, 04	0	0.00	0	
13	02, 03, 04	0	0.00	0	
14	03, 02, 04	0	0.00	0	
15	03, 02, 04	0	0.00	0	
16	03, 02, 04	0	0.00	0	
18	03, 02, 04	0	0.00	0	
19	03, 02, 04	0	0.00	0	
20	03, 25, 02	0	0.00	0	
22	03, 25, 02	0	0.00	0	
24	25, 03, 11	0	0.00	0	
25	25, 03, 11	0	0.00	0	
26	25, 03, 11	0	0.00	0	Outfall 26 was sealed and removed from service on September 9, 2014.
27	25, 03, 11	0	0.00	0	
28	25, 03, 11	0	0.00	0	
29	25, 03, 11	1	0.10	336	There was a dry weather overflow (DWO) from Outfall 29. The DWO occurred when an SPU construction contractor used an unapproved bypass system downstream of Outfall 29 (see ERTS #664195).
30	25, 03, 11	0	0.00	0	
31	25, 03, 11	0	0.00	0	
32	25, 03, 11	0	0.00	0	
33	25, 03, 11	0	0.00	0	
34	25, 03, 11	0	0.00	0	
35	25, 03, 11	0	0.00	0	
36	25, 03, 11	0	0.00	0	
38	18, 15, 16	0	0.00	0	
40	18, 15, 16	0	0.00	0	
41	18, 15, 16	0	0.00	0	
42	18, 15, 16	0	0.00	0	4/17/2016 7:00 AM - 4/17/2016 1:40 PM. 4/17/2016 2:05 PM - 4/18/2016 7:00 AM. Data losses occurred during each of these time periods due to monitor malfunctions. Monitoring was fully restored at the end of each monitoring outage. No rainfall occurred during these two outages.
43	18, 15, 16	0	0.00	0	
44	18, 16, 30	1	0.67	8,345	
45	18, 16, 30	0	0.00	0	
46	18, 30, 16	0	0.00	0	
47	30, 18, 16	0	0.00	0	
48	30, 18, 16	0	0.00	0	
49	30, 18, 16	0	0.00	0	
57	08, 07, 09	0	0.00	0	
59	08, 07, 09	0	0.00	0	
60	08, 12, 07	0	0.00	0	
61	12, 08, 11	0	0.00	0	
62	12, 08, 11	0	0.00	0	

**CSO Report Summary:**

64	12, 08, 11	0	0.00	0	4/19/2016 12:00 AM to 4/19/2016 6:30 AM. Data loss occurred during this period due to SCADA malfunction. SCADA was fully restored at 6:31 AM. No rainfall occurred during this outage.
68	12, 11, 08	0	0.00	0	
69	11, 25, 15	0	0.00	0	
70	11, 25, 15	0	0.00	0	
71	11, 25, 15	1	0.87	48,278	
72	11, 25, 15	0	0.00	0	
78	14, 11, 15	0	0.00	0	
80	14, 11, 15	0	0.00	0	
83	14, 11, 15	0	0.00	0	
85	14, 05, 15	0	0.00	0	
88	14, 05, 15	0	0.00	0	
90	05, 14, 17	0	0.00	0	
91	05, 17, 14	0	0.00	0	4/14/16 7:21 AM to 4/14/16 8:39 AM. Data loss occurred during this period due to SCADA malfunction. SCADA was fully restored at 8:40 AM. No rainfall occurred during this outage.
94	05, 17, 14	0	0.00	0	
95	05, 17, 14	0	0.00	0	
99	14, 15, 11	0	0.00	0	
107	15, 14, 11	0	0.00	0	
111	15, 14, 16	0	0.00	0	4/26/2016 9:25 AM to 4/26/2016 11:05 AM. Data loss occurred during this period due to monitor malfunction. Monitoring was fully restored at 11:06 AM. No rainfall occurred during this outage.
120	09, 03, 11	0	0.00	0	
121	03, 11, 09	0	0.00	0	
124	11, 25, 03	0	0.00	0	
127	11, 25, 03	0	0.00	0	
129	03, 25, 11	0	0.00	0	
130	03, 25, 11	0	0.00	0	
131	03, 09, 25	0	0.00	0	
132	03, 09, 25	0	0.00	0	
134	03, 09, 25	0	0.00	0	
135	03, 09, 25	0	0.00	0	
136	03, 09, 25	0	0.00	0	
138	03, 25, 09	0	0.00	0	
139	03, 25, 09	0	0.00	0	
140	03, 25, 09	0	0.00	0	
141	03, 09, 25	0	0.00	0	
144	03, 09, 25	0	0.00	0	
145	03, 09, 25	0	0.00	0	
146	03, 09, 11	0	0.00	0	
147	03, 09, 11	3	9.17	34,687	
148	09, 08, 12	0	0.00	0	
150/151	08, 09, 07	1	0.20	40,024	Combined sewer overflows from Basin 150/151 are monitored at an upstream overflow structure before discharging through two separate outfalls.
152	08, 09, 07	3	50.93	137,409	
161	02, 04, 03	0	0.00	0	

**CSO Report Summary:**

<b>165</b>	18, 16, 15	0	0.00	0	
<b>168</b>	17, 15, 05	0	0.00	0	
<b>169</b>	17, 05, 16	0	0.00	0	
<b>170</b>	17, 15, 05	0	0.00	0	
<b>171</b>	30, 18, 16	0	0.00	0	
<b>174</b>	09, 08, 12	0	0.00	0	
<b>175</b>	03, 25, 11	0	0.00	0	
<b>Total Recorded:</b>				<b>269,079</b>	

**CSO Report Details:**

29	04/08/16	0.10	336	0.00	0.00
44	04/24/16	0.67	8,345	0.24	16.15
71	04/24/16	0.87	48,278	0.27	16.15
147	04/04/16	0.08	115	0.24	4.17
147	04/12/16	0.83	10,944	0.26	2.47
147	04/24/16	8.25	23,628	0.50	21.65
150/151	04/24/16	0.20	40,024	0.58	15.27
152	04/03/16	0.68	70,908	0.13	1.27
152	04/12/16	34.62	6,119	0.33	34.97
152	04/24/16	15.63	60,382	0.59	15.53
<b>Total Recorded:</b>			<b>269,079</b>		

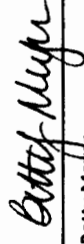
**DISCHARGE MONITORING REPORT PREPARATION AND REVIEW:**

Prepared by:



Abdimalik Aar  
Sr. Civil Eng. Specialist  
Systems Operation, Planning, and Analysis (SOPA)  
[abdimalik.aar@seattle.gov](mailto:abdimalik.aar@seattle.gov)  
(206) 615-1444

Approved for Submittal:



Betty Meyer  
Wastewater Regulatory Compliance Manager  
DWW Line of Business  
[betty.meyer@seattle.gov](mailto:betty.meyer@seattle.gov)  
(206) 386-1999

14



**City of Seattle**  
Seattle Public Utilities

June 28, 2016

Ms. Chris Smith  
WPLCS Coordinator, Department of Ecology  
Northwest Regional Office  
3190 160<sup>th</sup> Ave SE  
Bellevue, WA 98008-5452

**RE: May 2016 Combined Sewer Overflow Discharge Monitoring Report**

Dear Ms. Smith:

This letter is in response to requirements in NPDES Permit No. WA0031682, Section S3.A, that refer to monthly combined sewer overflow reporting. Enclosed is the May 2016 Combined Sewer Overflow Discharge Monitoring Report that includes data from May 1 through May 31, 2016.

During May 2016, there were 5 recorded combined sewer overflows, discharging a total of approximately 0.07 million gallons of combined sewage. These overflows occurred during rain events and began on May 8, 18, 19, and 29. In addition, there was a dry weather overflow from Outfall 68 that occurred on May 21 to May 22. The overflow was caused by an obstruction in the HydroBrake that regulates flow from Sub-Basin 68A (see ERTS #665098 and 665120). An estimated 113,013 gallons of combined sewage flowed through Outfall 68 into Elliott Bay.

If you have any questions regarding this report, please contact Wastewater Regulatory Compliance Manager Betty Meyer at (206) 386-1999 or email her at [betty.meyer@seattle.gov](mailto:betty.meyer@seattle.gov).

I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment, for knowing violations.

Sincerely,

Madeline Fong Goddard, P.E.  
Deputy Director  
Drainage and Wastewater Line of Business

cc: CSO Reduction Program Staff, Seattle Public Utilities

Ray Hoffman, Director  
Seattle Public Utilities  
PO Box 34018  
Seattle, WA 98124-4018

Tel (206) 684-5851  
Fax (206) 684-4631  
TDD (206) 233-7241  
<http://www.seattle.gov/util>



CSO Report Summary:					
12	02, 03, 04	0	0	0.00	
13	02, 03, 04	0	0	0.00	
14	03, 02, 04	0	0	0.00	
15	03, 02, 04	0	0	0.00	
16	03, 02, 04	0	0	0.00	
18	03, 02, 04	0	0	0.00	
19	03, 02, 04	0	0	0.00	5/5/2016 3:50 PM to 5/6/2016 9:45 AM. Data loss occurred during this period due to monitor malfunction. Monitoring was fully restored at 9:46 AM. No rainfall occurred during this outage.
20	03, 25, 02	0	0	0.00	
22	03, 25, 02	0	0	0.00	
24	25, 03, 11	0	0	0.00	
25	25, 03, 11	0	0	0.00	
27	25, 03, 11	0	0	0.00	
28	25, 03, 11	0	0	0.00	
29	25, 03, 11	0	0	0.00	5/3/2016 8:05 AM to 5/3/2016 9:00 AM. Data loss occurred during this period due to an error in processing the data. A data review conducted before the processing error indicated no overflows occurred during this period. Monitoring was fully restored at 9:01 AM.
30	25, 03, 11	0	0	0.00	
31	25, 03, 11	0	0	0.00	
32	25, 03, 11	0	0	0.00	
33	25, 03, 11	0	0	0.00	
34	25, 03, 11	0	0	0.00	5/5/16 11:00 AM - 5/9/16 13:55 PM. 5/23/16 8:50 AM - 5/23/16 14:00 PM. Flow monitoring equipment was removed as needed during construction of the Leschi Sewer System Improvements. Flow was monitored on an interim basis at the adjoining pump station (WWPS002). Monitoring was fully restored after each period. No CSOs occurred during these periods.
35	25, 03, 11	0	0	0.00	
36	25, 03, 11	0	0	0.00	
38	18, 15, 16	0	0	0.00	
40	18, 15, 16	0	0	0.00	
41	18, 15, 16	0	0	0.00	
42	18, 15, 16	0	0	0.00	
43	18, 15, 16	0	0	0.00	
44	18, 16, 30	0	0	0.00	
45	18, 16, 30	0	0	0.00	
46	18, 30, 16	0	0	0.00	
47	30, 18, 16	0	0	0.00	5/20/2016 8:15 AM to 5/20/2016 2:25 PM. Data loss occurred during this period due to monitor malfunction. Monitoring was fully restored at 2:56 PM. No rainfall occurred during this outage.
48	30, 18, 16	0	0	0.00	

**CSO Report Summary:**

49	30, 18, 16	0	0	0.00	
57	08, 07, 09	0	0	0.00	
59	08, 07, 09	0	0	0.00	
60	08, 12, 07	0	0	0.00	
61	12, 08, 11	0	0	0.00	
62	12, 08, 11	0	0	0.00	
64	12, 08, 11	0	0	0.00	
68	12, 11, 08	1	113,013	15.20	5/21/2016 8:38 PM to 5/22/2016 11:50 AM. An obstruction in the HydroBrake that regulates flow from Sub-Basin 68A resulted in a dry weather overflow (see ERTS #665098 and 665120).
69	11, 25, 15	1	30,470	0.33	
70	11, 25, 15	0	0	0.00	
71	11, 25, 15	0	0	0.00	
72	11, 25, 15	0	0	0.00	
78	14, 11, 15	0	0	0.00	
80	14, 11, 15	0	0	0.00	
83	14, 11, 15	0	0	0.00	
85	14, 05, 15	0	0	0.00	
88	14, 05, 15	0	0	0.00	
90	05, 14, 17	0	0	0.00	
91	05, 17, 14	0	0	0.00	5/9/16 12:26 PM to 5/9/16 1:39 PM. Data loss occurred during this period due to SCADA malfunction. SCADA was fully restored at 1:40 PM. No rainfall occurred during this outage.
94	05, 17, 14	0	0	0.00	
95	05, 17, 14	0	0	0.00	
99	14, 15, 11	0	0	0.00	
107	15, 14, 11	0	0	0.00	
111	15, 14, 16	0	0	0.00	
120	09, 03, 11	0	0	0.00	
121	03, 11, 09	0	0	0.00	
124	11, 25, 03	0	0	0.00	
127	11, 25, 03	0	0	0.00	
129	03, 25, 11	0	0	0.00	
130	03, 25, 11	0	0	0.00	
131	03, 09, 25	0	0	0.00	
132	03, 09, 25	0	0	0.00	
134	03, 09, 25	0	0	0.00	
135	03, 09, 25	0	0	0.00	
136	03, 09, 25	0	0	0.00	
138	03, 25, 09	0	0	0.00	
139	03, 25, 09	0	0	0.00	
140	03, 25, 09	0	0	0.00	
141	03, 09, 25	0	0	0.00	
144	03, 09, 25	0	0	0.00	

**CSO Report Summary:**

145	03, 09, 25	0	0	0.00	
146	03, 09, 11	0	0	0.00	
147	03, 09, 11	2	29,847	0.92	
148	09, 08, 12	0	0	0.00	
150/151	08, 09, 07	0	0	0.00	Combined sewer overflows from Basin 150/151 are monitored at an upstream overflow structure before discharging through two separate outfalls.
152	08, 09, 07	2	9,042	0.40	
161	02, 04, 03	0	0	0.00	
165	18, 16, 15	0	0	0.00	
168	17, 15, 05	0	0	0.00	
169	17, 05, 16	0	0	0.00	
170	17, 15, 05	0	0	0.00	
171	30, 18, 16	0	0	0.00	
174	09, 08, 12	0	0	0.00	
175	03, 25, 11	0	0	0.00	
<b>Total Recorded:</b>			<b>182,372</b>		

**CSO Report Details:**

68	05/21/16	113,013	15.20	3.72	0.13
69	05/19/16	30,470	0.33	20.53	0.41
147	05/18/16	28,993	0.75	1.18	0.23
147	05/29/16	854	0.17	0.62	0.08
152	05/08/16	8,104	0.23	16.67	0.09
152	05/18/16	938	0.17	0.48	0.08
<b>Total Recorded:</b>		<b>182,372</b>			

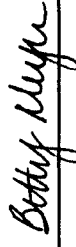
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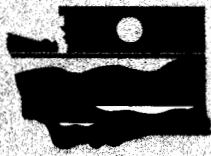
15

Summary of CSO Events from Seattle's Discharge Monitoring Reports

Jan-16	66	36,815,490
Feb-16	36	5,090,502
Mar-16	33	8,418,178
Apr-16	9	269,079
May-16	5	182,372
Jun-16	12	1,075,376
Jul-16	4	96,634
Aug-16	3	45,969
Sep-16	7	976,717
Oct-16	76	20,167,042
Nov-16	43	11,091,794
Dec-16	18	1,348,912
<b>Total</b>	<b>312</b>	<b>85,578,065</b>

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DEPARTMENT OF  
**ECOLOGY**  
State of Washington



*Washington State Department of*  
**Health**

## **PCB Chemical Action Plan**

February 2015  
Publication no. 15-07-002

## Publication and Contact Information

This report is available on the Department of Ecology's website at  
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- |                                       |              |
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| ○ Central Regional Office, Yakima     | 509-575-2490 |
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## Major sources

For the purposes of this CAP, sources are considered to be the original material, such as PCBs in transformers. PCBs move through pathways such as stormwater and expose people and wildlife.

Current PCB levels in Washington State represent both historical uses and ongoing manufacturing processes that create PCBs. A large reservoir of past uses of PCBs includes electrical equipment such as transformers and capacitors, and building materials such as caulk and paint. About 75 percent of PCBs produced before 1979 were used in transformers and capacitors, including small capacitors in lamp ballasts and appliances. The second largest pre-1979 use, about 10 percent, was as plasticizers, including in caulk.

PCBs are still unintentionally generated by combustion and by different manufacturing processes, such as for some pigments and dyes. While there is a lot of recent research on the generation of PCBs during production of pigments and dyes, little work has been done to shed light on other processes that are likely to generate and release new PCBs. Non-point releases, such as from consumer products, are becoming increasingly important to control and reduce overall PCB delivery to humans and the environment.

## Pathways

Lower chlorinated congeners are more readily emitted to the air from sources such as old caulk and intact lamp ballasts. When lamp ballasts fail or caulk is disturbed, a greater amount of all of the congeners are released. Lower chlorinated congeners travel further in air compared to the higher chlorinated congeners, and eventually all the congeners are deposited onto surfaces. PCBs do not readily dissolve in water and they bind to particles. Particle-bound PCBs can be transported through stormwater and end up in sediment. The relative abundance of PCBs in sediment is seen in Puget Sound where 97 percent of the PCBs are bound to sediment (1440 kg), less than three percent are in organisms (40kg), and less than one percent (10 kg) are dissolved in water. Under certain conditions, such as in the Spokane River, PCBs are found in the water column rather than in sediments.

Stormwater is the largest delivery pathway to surface waters for PCBs statewide. Loadings from water treatment plants and atmospheric deposition are each less than 10 percent of the total, although atmospheric deposition is less well studied. There are smaller pathways, such as from salmon that accumulate PCBs while in the Pacific Ocean and then return to Washington to spawn. While the long-term goal is to prevent PCBs from entering stormwater, it is important to continue work on stormwater management, including piloting new technologies.

## Exposure

Levels of PCBs in the environment are mostly declining, but PCBs are still widespread. Wildlife are exposed to PCBs in their diet, along with PCBs in water, soil, and sediments. PCBs accumulate in fatty tissues, including in animals eaten for food. PCBs in food are the most significant source of exposure for most people, and we are particularly concerned with levels of PCBs in fish we eat. People are also exposed to PCBs in air, water, soil, and house dust. Levels of PCBs in people have declined since the 1980s, but everyone in the US has detectable levels of PCBs in their bodies. PCBs remain in people and animals for different numbers of years, varying by type of organism and type of PCB congener. Because PCBs are more readily absorbed than excreted, they accumulate in the body over time.

## Toxic effects

PCBs are persistent in the environment, build up in the food chain, and can cause adverse health effects in humans and wildlife including cancer and harm to immune, nervous, and reproductive systems. PCBs disrupt thyroid hormone levels in animals and humans, hindering growth and development.

## Priorities for new actions

As shown in Table 1 below, there are a variety of PCB sources with different concerns (each estimate is presented in the order it is discussed in the section on Sources, Uses and Releases and how each is derived is explained in that section). The table divides sources into those that are a legacy of the historic uses before 1979 and those that are currently ongoing.

We are especially concerned about exposure to children in school buildings with old lamp ballasts and other PCB-containing building materials. It is uncertain how many pre-1979 lamp ballasts are still in use, but they should be removed both for their potential to expose people to PCBs when they fail and because newer lights are more energy efficient. A large reservoir of PCBs in old caulk and other building materials is slowly being released into the environment. Releases from building materials can be greatly accelerated during remodeling and demolition. There is an opportunity, through use of best management practices, to prevent releases of PCBs during remodeling and demolition.

Inadvertent generation of PCBs is a potentially large and important source of uncontained PCBs, but little is known about the processes that inadvertently generate PCBs and what products contain them. We do know PCBs are created as a byproduct of pigments and dyes, and this creates a regulatory burden for paper recycling, municipal treatment works, and other dischargers in Washington. Finding alternative pigments and dyes will reduce PCB releases to the environment and alleviate water treatment burdens on business and municipalities.

While about 75 percent of the PCBs produced prior to 1979 were used in electrical equipment, most of the transformers and large capacitors that contain PCBs have been identified and replaced. The remaining equipment is largely monitored for spills that are cleaned up, further reducing the impact to people and the environment.

Table 1. Summary of sources, reservoirs, releases, exposures and priorities.

Source	Legacy reservoir of PCBs	Annual releases of PCBs (kg/yr)	Potential exposure pathways and concerns	Is the release contained?	Priorities
<b>Historic uses</b>					
transformers	100-200 kg	< 2	Accidental spills, which are identified and cleaned up.	Yes	
large capacitors	20 metric tons	10 to 80	Accidental spills, which are identified and cleaned up.	Yes	
lamp ballasts	100-350 metric tons	400 to 1,500	Continual release of lower concentrations, with high concentrations released when the ballast fails.	Yes	In school buildings as part of energy efficiency improvements.
small capacitors	1-35 metric tons	3 to 150	Disposal in landfills from a variety of old appliances.	Yes	
other closed uses		unknown		Yes	
caulk	87 metric tons	160	Continual release of lower concentrations into the air, with high concentrations released when materials are disturbed.	No	Remodeling and demolition, especially in schools.
other open uses		unknown		No	
<b>Current generation</b>					
pigments and dyes	N/A	0.02 to 31 <sup>a</sup>	Continual release of lower concentrations, with higher concentrations released during recycling.	No	Identify and promote safer alternatives.
other inadvertent generation	N/A	900	Concerns about both continual releases and potential large releases.	No	Identify processes and products first and then identify and promote safer alternatives.
residential waste burning	N/A	199	Released to air and already addressed by current regulations.	No	
commercial marine vehicles	N/A	0.4	Released to air and already addressed by current regulations.	No	

a. This estimate is for PCB-11, although additional congeners are present.

## Recommendations for New Actions

The goal of a CAP is to recommend actions to protect human health and the environment. Averting toxic exposures and avoiding future costs is the smartest, cheapest, and healthiest approach. The priority recommendations address the largest sources, largest reservoirs, uncontrolled sources, protect the most people, or protect especially vulnerable children, in the context of existing programs, costs, and available technology. Ongoing permitting, cleanup, and other actions are crucial to any efforts on PCBs. The following recommendations are for new actions in addition to our existing efforts to reduce PCBs.

The recommendations are based on an evaluation of the following factors associated with implementing the action: 1) environmental and human health benefits, 2) economic and social impacts, 3) feasibility, 4) availability and effectiveness of safer substitutes, and 5) consistency with existing federal and state regulatory requirements.

### **Historic PCB-Containing Building Materials**

**1. Identify PCB-containing lamp ballasts in schools and other public buildings. Encourage replacement with more energy efficient PCB-free fixtures.**

**Goal: Remove remaining PCBs lamp ballasts from schools and other publically owned buildings.**

Before 1979 PCBs were widely used in fluorescent lamp ballasts. PCB-containing lamp ballasts still in use should be identified and replaced with more energy efficient lighting. These ballasts have outlived their useful lives and are at high risk for failing (dripping, smoking, and catching fire). Ballast failures can expose children to concentrated PCB oils and elevated PCBs in air. Low concentrations of lower chlorinated PCB congeners are continually released from lamp ballasts. When ballasts fail, high concentrations of a broader spectrum of congeners are released, so it is important to find and remove the lamp ballasts before they fail.

There is no easily accessible source of information on how many of our approximately 9,000 school buildings are of the age and construction type likely to have PCB-containing lamp ballasts. The first step is to conduct a survey on schools (and other public buildings as time and resources allow) to identify buildings most likely to contain PCBs based on age, type of construction and scope of any past remodeling. This data will be used to identify those buildings where PCB-containing light ballasts are likely still in use. Lamp ballasts with PCBs can then be identified through visual inspection.

Public money should be used to remove PCB-containing lamp ballasts from schools and other public buildings. Since 2009, the legislature has provided money to the Office of the Superintendent of Public Instruction (OSPI) and the Department of Commerce to support energy

efficiency measures in schools and other public buildings. It makes sense to combine PCB removal with increasing energy efficiency rather than create a new program just for removal of PCB-containing ballasts. If the grant programs are not funded, the legislature should establish a fund to help offset the costs of replacing PCB-containing lamp ballasts. Schools with PCB-containing lamp ballasts will be provided with information about the importance of removing these ballasts and referred to OSPI (or Washington State Department of Health and other available resources) to replace these fixtures with more energy-efficient lighting. Environmental justice will also be considered in setting priorities for removing PCB-containing lamp ballasts.

**2. Develop and promote Best Management Practices (BMPs) to contain of PCBs in building materials currently in use and those slated for remodel or demolition.**

**Goal: Reduce exposure to people from PCBs in historic building materials and prevent PCBs in building materials from getting into stormwater.**

Ecology should work to prevent PCBs currently in building materials from being released into the environment. Historically, PCBs were used at high levels in some caulks and paints. Studies in other areas have shown the widespread occurrence of PCB-containing caulk in buildings from about 1950-1980, especially masonry buildings, and smaller sampling efforts in Washington support this conclusion. There is some information about PCB-containing building materials in the Duwamish basin and other information from source tracing, such as PCBs in sidewalk and building caulk in Tacoma.

Based on available data in Washington, other government programs, and the scientific literature, Ecology would develop BMPs for containing PCBs to prevent exposure during the life of the building and during remodeling or demolition. Lower concentrations of lower chlorinated congeners are continually released from caulk and paint, with higher concentrations of a broader spectrum of congeners released when the materials are disturbed. Ecology should also provide education and outreach on BMPs to local governments and those in the building trades.

While Ecology is working on BMPs, it should also support assembling existing information into a PCB Source Control Guidance Manual that can aid Local Source Control work to identify and control sources of PCBs. PCB source identification work has been performed by a number of urban waters programs around the Northwest. To date, the lessons learned from each of these programs has not been synthesized and summarized for the benefit of future pollution prevention efforts at the state and local level



### **3. Assess schools and other public buildings for the presence of PCB-containing building materials.**

**Goal: Reduce children's exposure to PCB-containing building materials in schools.**

**Goal: Prevent PCBs in building materials from getting into stormwater.**

Many historical building materials, such as caulk and paint, have been found to contain high levels of PCBs. These materials are more common in industrial buildings, including schools, compared to residential buildings. It makes sense to focus on schools for testing and remediating these materials, as children are more sensitive to PCBs and the buildings are usually publically owned. Washington has not tested schools for PCBs, but other states have found high levels of PCB contamination in schools.

The first step in Recommendation #1 is to get information on how many of our approximately 9,000 school buildings are of the age and construction type likely to have PCB-containing materials. The information would be used to prioritize schools for testing, pending the availability of funding to either contain or remediate PCBs that pose a risk for children and teachers. A similar approach should be used to assess other public buildings once the assessment and remediation of schools is complete.

Ecology would initially focus on determining how many schools are likely to contain PCBs in historic building materials, narrow that list with visual inspections and then physical testing to determine the scope of the problem in Washington. This will determine how much time and money will be required for remediation and allow for long term planning, including funding. As Ecology learns more about PCB-containing building materials in Washington schools and other buildings, that information will be used to improve efforts to locate and remediate buildings. Environmental justice will also be considered in setting priorities for removing PCB-containing building materials.

### **Current Manufacturing Processes**

#### **4. Learn more about what products contain PCBs and promote the use of processes that don't inadvertently generate PCBs.**

**Goal: Reduce newly generated PCBs in manufacturing processes.**

In 1982, the Environmental Protection Agency (EPA) identified 70 manufacturing processes likely to inadvertently generate PCBs. Little is known about most of this potentially large source of uncontained PCBs, including which congeners are produced. More information is known about PCBs in pigments and dyes, which are known to be released into the environment in stormwater, effluents from municipal treatment works, and effluents from pulp mills re-pulping post-consumer paper. Unpermitted non-point releases, such as from consumer products, are becoming increasingly important to control to reduce overall PCB delivery. Ecology should

PCBs. Forty-eight percent of the caulk samples contained PCBs, from < 50 ppm up to 550,000 ppm (55%).

The amount of PCBs in caulk was estimated in Toronto, Canada (Robson *et al.* 2010, Diamond *et al.* 2010). This study was based on a smaller sample size and found PCB-containing caulk in 14% of 95 buildings at concentrations of 0.57 ppm to 82 ppm. In Toronto, institutional and commercial buildings and infrastructure (e.g., bridges and parking lots) made of concrete were most likely to have PCB-containing caulk. They detected PCB in caulk in one single family detached home. As expected, they did not detect PCBs in caulk in buildings built before 1945 or after 1980. Based on the number of concrete institutional and commercial buildings built between 1945 and 1980, the size of the buildings, the amount of caulk in a typical building, the percentage estimated to have caulk, and the average concentration of PCBs in caulk, the authors estimated 13 metric tons of PCBs are in caulk in Toronto. The authors further estimated that up to 9% of the PCBs in caulk had been lost via volatilization. The observed congener pattern is consistent with volatilization of lower chlorinated congeners and comparative enrichment of higher chlorinated congeners (Robson *et al.* 2010).

There was also a study of PCB in caulk in the San Francisco Bay area as part of implementing the TMDL (Klosterhaus *et al.* 2011, 2014). This report estimates PCBs in buildings and how much is released to runoff during renovation and demolition. PCBs were detected in 88% of the 25 samples from 10 buildings. The concentrations ranged up to 220,000 ppm (22%) with 40% of the samples exceeding 50 ppm. The median and range were similar to the studies in Boston and Switzerland. The mid-range estimate was 10,500 kg of PCBs in caulk in existing buildings, using a similar method as was used in the Puget Sound Study (Ecology 2011b, Klosterhaus *et al.* 2011, 2014). Information on the number of renovations and demolitions in the San Francisco Bay area each year was used to estimate that 0.04 kg PCB is released each year to stormwater from renovation and demolition. Washington does not have information on the number of commercial buildings of that age and construction type that are renovated or demolished each year.

As part of the Lower Duwamish Waterway (LDW) cleanup in Seattle, Science Applications International Corporation (SAIC) investigated PCBs in old caulk and paint in the LDW (SAIC 2011). This was part of an effort to find additional sources of PCBs in the cleanup area, especially since high levels of PCBs in paint, caulk, and other building materials had been found at the former Rainier Brewery and North Boeing Field. They detected Aroclors in 8 of 17 composite caulk samples from representative buildings with detected concentrations from 3 to 920 mg/kg. The focus was on industrial buildings from 1950-1977. As expected, they did not find PCBs in a sample from buildings built in the 1940s. Surprisingly, they reported another building in the Seattle area that was built in 1989 and contained PCBs in caulk up to 1000 mg/kg. The use of PCBs in caulk in North America has not been reported this late. The number of samples with detectable PCBs (47%) is in agreement with the larger comprehensive study in Switzerland (Kohler *et al.* 2005).

### *Estimate in Washington*

The report on sources of toxic chemicals released in the Puget Sound Basin (Ecology 2011b) estimated 59 metric tons of PCBs are in building sealants in that area with about 110 kg released annually. This estimate was based on the number of existing masonry commercial buildings that were built between 1945 and 1980, the average size of those buildings and the distribution of PCB concentrations in caulk found in the more comprehensive survey by Kohler *et al.* (2005). This is likely to underestimate the amount of PCBs in sealants because it does not consider all uses in buildings, such as around windows, uses in residential buildings, or in other structures, such as bridges and sidewalks. The annual release estimate was based on a release rate coefficient of 0.0018/yr from long term loss rates in Robson *et al.* 2010.

The estimate for the Puget Sound Basin was based on detailed information about buildings in Pierce and Snohomish Counties and then scaled up to the rest of the study area by population. The estimated volume of masonry buildings built from 1945 to 1980 in Pierce and Snohomish Counties was 21,941,562 m<sup>3</sup>. To estimate PCBs in caulk for the state we scaled up the volume of masonry commercial buildings that were built between 1945 and 1980 by population, leading to an estimate of 97,702,645 m<sup>3</sup> with 5,373,645 kg of caulk for the state.

The large study in Switzerland (Kohler *et al.* 2005) found 48% of the targeted buildings had PCB- containing sealants. Applying this to the state estimate on sealants leads to 2,573,976 kg of PCB-containing sealants. The PCB concentration ranges from Kohler *et al.* (2005) were applied to the estimated mass of PCB-containing sealants in Washington, yielding an estimate of 87 metric tons of PCBs in sealants in Washington with 157 kg released annually (Table 17).

**Table 17. Estimates from caulk**

sealant quantity (kg)	sealants with PCBs (kg)	PCB conc bin (mg/kg)	bin mid point	% for each bin	PCB quantity (kg)	Annual releases (kg)
5,373,645	2,573,976	20-50	35	0.121	11	
		50-100	75	0.0772	15	
		100-1,000	550	0.1899	269	
		1,000-10,000	5,500	0.1815	2,569	
		10,000-100,000	55,000	0.2316	32,787	
		>100,000	100,000	0.2003	51,557	
Total				1.0	87,208	157

In addition, PCBs are released into the environment during renovation and demolition of buildings that contain PCBs in caulk and other building materials. In order to estimate this we need to know how many buildings of that age and construction type are demolished or renovated in the state, which we do not know.

### *Opportunities for Reduction*

- Status quo
  - PCBs may be found and remediated during source identification efforts.
- Require removal or remediation of all PCB containing caulks, statewide.
- Develop best practices for demolition and renovation.
- Investigate the status of PCB containing materials in schools.
- Remove or remediate PCB-containing caulk in schools.
- Partner with EPA and federal facilities to identify and remove caulk and other PCB-containing materials.

Many schools in Washington were built when PCBs were used in caulk, lighting ballasts, paint, and other building materials. EPA has information on PCBs in caulk and other building materials that includes how to test for PCBs and how to safely remove PCB-containing materials (<http://epa.gov/pcbsincaulk/index.htm>). Their outreach has been focused on schools, due to the sensitivity of developing children. There are reports of methods for removing PCBs where more than 99% of the PCBs in caulk were captured following the use of BMPs specifically aimed at preventing PCB releases (e.g., Sundahl *et al.* 1999).

Caulk, other building materials, and other historic uses of PCBs are found on Navy vessels and other military equipment (EPA 2006). This is an opportunity for Ecology to partner with EPA and federal facilities to expand PCB source identification and removal activities.

## **Inadvertent generation in new products**

PCBs are no longer intentionally manufactured in the U.S. and the manufacture, processing, and distribution in commerce of PCBs at concentrations of 50 ppm or greater is not allowed. EPA promulgated a rule under TSCA in 1984 for inadvertent generation of PCBs that are not in closed or controlled manufacturing processes (49 FR 28172). The concentration of inadvertently generated PCBs in products must have an annual average of < 25 ppm, with a maximum of 50 ppm. In addition, EPA required manufacturers with processes inadvertently generating PCBs and importers of products containing inadvertently generated PCBs to report to EPA any process or import for which the PCB concentration is greater than 2 mg/kg for any resolvable PCB gas chromatographic peak. More details on TSCA are in the section on Regulations.

As part of this rulemaking on inadvertently generated PCBs, EPA generated a list of 200 chemical processes with a potential for generating PCBs (Appendix D) and narrowed it to 70 with a high potential to inadvertently generate PCBs. The list does not include every process that inadvertently generates PCBs and not everything on the list inadvertently generates PCBs. In general, PCBs can be produced when chlorine and carbon are present with elevated temperatures or catalysts.

The final rule also includes an estimated annual production of inadvertently generated PCBs of 100,000 lbs (45,400 kg). Scaled to population, Washington's share of that would be about 900 kg a year. Only 11% of the PCBs were estimated to enter products, or 100 kg annually in Washington. As the economy has grown over the last 30 years, the amount of inadvertently generated PCBs may also have grown. The 100,000 lbs was an estimate from a consensus proposal from the Environmental Defense Fund, Natural Resources Defense Council, and Chemical Manufacturers Association (now known as the American Chemistry Council) that included all inadvertent generation of PCBs, without being broken down into how much came from each process. Products that are mentioned include paints, printing inks, agricultural chemicals, plastic materials, and detergent bars. The 1982 economic analysis for this rule mentions 135 manufacturing processes that generate PCBs at less than 50 ppm from a Chemical Manufacturers Association survey. The economic analysis also includes a list from EPA of about 20 "end-products of manufacturing processes in which PCBs are incidentally generated."

In their rule on inadvertent production, EPA specifically mentions surfactants as the component of detergent bars that is likely to contain PCBs. EPA also mentioned PCBs are likely to be in surfactants in skin lotions and creams that are regulated by the FDA. We have no estimate for how many PCBs are inadvertently produced in surfactant.

### **Reports to EPA on inadvertent generation**

As mentioned above, the 1984 rule under TSCA (49 FR 28172) requires manufacturers to report inadvertent generation of PCBs. There are 77 reports for inadvertently generated PCBs from 1994 to present (Table 18). Some information on each report is in Appendix E. There are additional reports included in the docket for related topics, such as requests to produce small amounts of PCBs for research purposes. A lot of the information in the reports has been redacted to remove confidential business information (CBI). In general the reports repeated the federal requirements while stating the company is in compliance and without giving specific information about the concentration of PCBs in the products or the total amount of the products. None of the reports were for facilities in Washington State.

Many reports include a statement that the materials may contain PCBs > 2 ppm, but likely do not and the reporter was being very conservative in reporting anything that might contain PCBs > 2 ppm. The reports assert that no products contained more than 50 ppm or more than 25 ppm for an annual average (which are the limits in rule).

**Table 18. Reports to EPA on inadvertent generation 1994-present**

<b>Chemical or process</b>	<b>Number of reports</b>
Pigments and dyes	53
GE silicones	8
Vinyl chloride production	3
Unique	6
Unknown	7
Total	77

Some of the reports in Table 18 in the category of pigments and dyes list individual pigments (yellow, red, green, blue violet and orange with Color Index (CI) numbers), some include a general description such as “imported dyes,” while others do not include any specific information, but come from a division of the company such as the “Pigments Division.”

Eight reports are from GE Silicones. There is no additional information on the products.

There are three reports from three different companies regarding vinyl chloride production, one of which was a unique incident involving diesel contamination. Geon stated they are reporting on 740 lbs of PCBs in 62,676,000 lbs of chemical feedstocks used in a vinyl chloride monomer manufacturing facility in Texas. The third report is for incidental PCBs generated in the chlorination step of a process stream to remove an impurity.

There are six reports from six different companies on unique compounds or processes. These reports are for trichlorobenzene manufacture, 2,4,6-Trichlorophenylhydrazine (2,4,6-TCPH), 2,6-Dichloro-4-Nitro Aniline, a pesticide intermediate, chlorothalonil production process, and one report for electrical capacitors. The one report for electrical capacitors also included the information that PCBs were at 3.9 ppm in 134 liters. The report on 2,4,6-Trichlorophenylhydrazine stated the concentration was usually 9-12 ppm.

Seven reports were for unknown compounds or processes. Four of these were completely redacted with a place holder stating there was a report. Two reports redacted the name of the company in addition to the compounds. One report was for two containers of a non-PCB product with 4 and 5 ppm PCBs.

## **Pigments and dyes**

More details on generation of PCBs during manufacturing are provided in the earlier section on Chemistry. PCBs are known to be inadvertently generated in certain pigments and dyes, including diarylides (yellow and orange), naphtharylides (oranges and reds), phthalocyanines (blue), and basic dye complex pigments (reds, violets, blues and greens) (Christie 2013). PCB-11 is thought to be primarily from pigment production and not from legacy uses of Aroclors (Hu and Hornbuckle 2010, Guo *et al.* 2014), and so is useful as an indication of inadvertent

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## 2017 Construction General Permit (CGP) – Fact Sheet

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EPA may determine on a case-by-case basis that a site discharges to a sensitive water.

The rationale for the more stringent impaired waters requirements was explained in the 2012 CGP fact sheet, available at [https://www.epa.gov/sites/production/files/2015-10/documents/cgp2012\\_finalfactsheet.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/cgp2012_finalfactsheet.pdf), as follows:

**Frequency of Site Inspections.** ... It is EPA's judgment that these modified inspection requirements will enhance the operator's ability to find and correct problems before a discharge of pollutants to the impaired water occurs.

**Deadline to Complete Stabilization.** ... It is EPA judgment that, in waters already degraded for pollutants associated with construction activities, further reducing the amount of time that exposed soil is left in an unstabilized state is especially important for limiting the sediment and/or nutrient load to these waters. The faster stabilization requirement for areas discharging to sediment and nutrient-impaired waters is designed to minimize the erosion and sedimentation that is associated with large, exposed areas.

EPA specifically anticipated that a stricter stabilization timeframe would be within the permitting authority's discretion in implementing the 40 CFR 450.21(b) requirement of the C&D rule. In the preamble to the C&D rule, EPA explained that "the permitting authority may determine it necessary for operators to initiate soil stabilization measures when construction activity has permanently or temporarily ceased and will not resume for a period exceeding 7 calendar days, as opposed to 14 calendar days ....".

The rationale for the more stringent requirements for Tier 2, 2.5, and 3-designated waters was explained in the 2012 CGP fact sheet as follows:

As stated in Part 3.1 of the [2012] permit, in the absence of information demonstrating otherwise, EPA expects that compliance with the conditions in this permit will result in stormwater discharges being controlled as necessary to meet applicable water quality standards (which include state antidegradation requirements). More specifically, by imposing on operators that discharge to Tier 2, Tier 2.5, or Tier 3 waters the requirement to comply with the additional requirements, on top of the permit's other effluent limits and conditions, to stabilize exposed areas faster and to conduct more site inspections than other sites, it is EPA's judgment that authorizing these discharges will not result in a lowering of water quality. Thus, EPA has determined that compliance with the CGP generally will be sufficient to satisfy Tier 2 (or 2.5) and Tier 3 antidegradation requirements because the controls will not result in a lowering of water quality, making individualized Tier 2 or Tier 3 review unnecessary, assuming of course that the discharger is in compliance with any other applicable state or tribal antidegradation conditions that are included in Part 9 of the permit. Furthermore, the controls in the permit are sufficiently stringent that they would generally satisfy the requirement at the heart of Tier 2 review, that the discharge is necessary to accommodate important economic or social development in the area where the discharge is located. Construction is usually important to economic and social development, and the controls already required in Part 2 of this permit have been identified by EPA in its effluent limitations guideline for the construction and development category as the level of pollutant abatement that is the best available technology economically achievable. However, in cases where information submitted with the NOI, or available from other sources, indicates that further Tier 2 or Tier 3 review and/or conditions are necessary either for a new

project or an existing project with a significantly increased discharge, EPA will conduct this review and require any appropriate additional controls.

The conclusion that compliance with the CGP will generally meet the Tier 2 and Tier 3 antidegradation requirements depends on several key aspects of the permit. First, all construction sites that will be subject to this permit must meet the stringent general effluent limits set out in Part 2. Through compliance with these limits alone, EPA expects that the discharge of pollutants will be reduced and/or eliminated so that there should not be a lowering of water quality. EPA bases this conclusion in part on the fact that the limits in this permit are based on the nationally-developed effluent limitations guidelines process that defined the BAT/BCT/BPT and NSPS level of control. EPA also is imposing on these sites the requirement to meet even more stringent controls defined in 4.1.3 [of the 2012 CGP] (more frequent inspections) and 2.2.1.3c [of the 2012 CGP] (stricter stabilization deadlines). Furthermore, once installed and implemented, the operator is obligated to maintain these controls and to correct deficiencies where inspection determines that deficiencies exist. Where EPA determines through its oversight activities (e.g., onsite inspection) that a discharger is not meeting its limits, such a deficiency will constitute a violation of the permit and will require follow-up corrective action pursuant to Part 5.2.1.3 [of the 2012 CGP].

Second, there may very well be individual cases where EPA determines that further controls are necessary or that coverage under the CGP is no longer appropriate to protect the Tier 2, 2.5, or 3 status of the receiving water. For this reason, EPA has included the following language in Part 3.3.2 [of the 2012 CGP]: "on a case-by-case basis, EPA may notify operators of such new projects or operators of existing projects with significantly increased discharges that additional analyses, stormwater controls, or other permit conditions are necessary to comply with the applicable antidegradation requirements, or notify you that an individual permit application is necessary in accordance with Part 1.4.5 [of the 2012 CGP]." It is anticipated that if EPA decides to require a Tier 2 or Tier 3 review for a particular new project or an existing project with a significantly increased discharge, EPA may either change the terms of coverage or terminate CGP coverage and require an individual permit.

Part 3.2 also clarifies that operators will be informed if any additional controls are necessary for the discharge to be consistent with the assumptions of any available wasteload allocation in the TMDL. These provisions are intended to implement the requirements of 40 CFR 122.44(d)(1)(vii)(B), which requires that water quality-based effluent limits in permits be "consistent with the assumptions and requirements of any available wasteload allocation for the discharge" and of 40 CFR 122.4(i), which contains requirements regarding the issuance of permits for new sources.

Part 3.2 also clarifies when discharges from construction sites are discharging to an impaired water. EPA added such clarification due to uncertainty among the regulated community as to how to determine whether a site discharges to an impaired water.

Part 3.2 also includes a new requirement for operators discharging to waters impaired for polychlorinated biphenyls (PCBs) to implement controls to minimize the exposure of building materials containing polychlorinated biphenyls (PCBs) to precipitation and stormwater during demolition of any structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980. Buildings and structures originating or remodeled between the years of 1950-1979 often contain polychlorinated biphenyls (PCBs) in materials such as caulk and paint. Without proper controls, the demolition of such structures can cause PCBs to be released into the environment and discharged into waters of the U.S. during storm events. To address this

concern, Part 3.2 requires controls to be implemented to minimize exposure of building materials containing PCBs to precipitation and stormwater, and to ensure that such materials are disposed in compliance with applicable state, federal, and local laws. The requirement is limited to the demolition of buildings or structures with at least 10,000 square feet of floor space built or renovated before January 1, 1980 on sites that discharge to PCB-impaired waters. This requirement helps to ensure that authorized discharges will meet WQS.

The presence of PCBs in certain building components, especially in caulk and fluorescent light bulbs, has been a focus of EPA's research over the past several years. The following is a summary of the findings from EPA studies establishing the presence of PCBs in building materials, particularly in school buildings:

- Caulk put in place between 1950 and 1979 may contain as much as 40 percent PCBs and can emit PCBs into the surrounding air. PCBs from caulk may also contaminate adjacent materials such as masonry or wood.
- Fluorescent lighting fixtures that still contain their original PCB-containing light ballasts have exceeded their designed lifespan, and the chance for rupture and emitting PCBs is significant. Sudden rupture of PCB-containing light ballasts may result in exposure to the occupants and may also result in the addition of significant clean-up costs.
- Some building materials (e.g., paint and masonry walls) and indoor dust can absorb PCB emissions and become potential secondary sources for PCBs. When the primary PCB-emitting sources are removed, the secondary sources often emit PCBs.

See EPA's webpage, *Polychlorinated Biphenyls (PCBs) in Building Materials*, located at <https://www.epa.gov/pcbs/polychlorinated-biphenyls-pcbs-building-materials>, for more information.

Releases of PCBs into the environment from building materials containing PCBs has also been well studied in certain regions of the country. In Washington State, stormwater was identified as the largest delivery pathway to surface waters for PCBs. Washington's "PCB Chemical Action Plan" identifies PCBs in caulk and paint as the second largest source of PCBs, accounting for 87 metric tons of PCBs in WA, with 160 kg/yr. released to the environment.<sup>17</sup> The Plan states that "Releases from building materials can be greatly accelerated during remodeling and demolition. There is an opportunity, through use of best management practices, to prevent releases of PCBs during remodeling and demolition."

Another Washington State Department of Ecology report, focusing on the Puget Sound Basin,<sup>18</sup> estimates 59 metric tons of PCBs are in building sealants in that area with about 110 kg released annually. This is likely an underestimate because the report did not consider all uses in buildings, e.g., windows, uses in residential buildings, or in other structures, such as bridges and sidewalks.

Building materials and caulk were also found to be potential sources of PCBs at both the Lower Duwamish Waterway<sup>19</sup> and Commencement Bay/Nearshore Tidelands Superfund sites in

<sup>17</sup> 2015. PCB Chemical Action Plan. Washington State Department of Ecology. <https://fortress.wa.gov/ecy/publications/SummaryPages/1507002.html>

<sup>18</sup> 2011. Control of Toxic Chemicals in Puget Sound Phase 3: Primary Sources of Selected Toxic Chemicals and Quantities Released in the Puget Sound Basin. Ecology Publication No. 11-03-024. <https://fortress.wa.gov/ecy/publications/documents/1103024.pdf>

<sup>19</sup> 2011 Lower Duwamish Waterway Survey of Potential PCB-Containing Building Material Sources. Prepared for Ecology. <https://fortress.wa.gov/ecy/gsp/DocViewer.aspx?did=41052>

Washington State. The Rainier Commons building, currently a Toxic Substances Control Act (TSCA) cleanup site, was found to contain high concentrations of PCBs in caulk and paint that entered the stormwater system via catch basins on site. This system drains to the Lower Duwamish Waterway cleanup area. Elevated concentrations of PCBs in roadway caulk were found during source tracing by the City of Tacoma in response to the re-contamination of the Thea Foss Waterway in Commencement Bay.<sup>20</sup>

Releases of PCBs into the environment from PCB-containing building materials have also been well studied in the San Francisco Bay region. The San Francisco Bay Regional Water Quality Control Board found that "of the sources to the Bay, stormwater runoff contributes the greatest mass of PCBs."<sup>21</sup> A study of buildings within greater San Francisco Bay region found PCBs in 88% of the caulk samples tested; 40% of the samples contained >50 ppm PCBs, and 20% > 10,000 ppm PCBs.<sup>22</sup> Data suggest a correlation between PCB levels observed in the water with construction activity. Based on these studies, the San Francisco Bay Regional Water Quality Control Board stated that controlling demolition of buildings containing PCBs could significantly reduce the loading of PCBs in their stormwater.

EPA is purposefully limiting this new requirement to apply to sites that discharge to waters with known impairments for PCBs. Over 4,500 water bodies are currently listed in the PCB-polluted category, making this the sixth-highest water pollution cause nationwide.<sup>23</sup> This includes 81,610 miles of rivers and streams, 3,204,534 acres of lakes and ponds, and 400,094 square miles of bays and estuaries that are impaired for PCBs.<sup>24</sup> EPA does not currently have data on the number of construction projects subject to EPA's CGP that may involve demolition of a structure with at least 10,000 square feet of floor space built or renovated before January 1, 1980 on sites that discharge to waters impaired for PCBs. Therefore, at this time, EPA does not have an estimate for the number of operators that will be affected by this new requirement. However, EPA added a new question on the NOI form asking about the prevalence of demolition of a structure with at least 10,000 square feet of floor space that was built or renovated before January 1, 1980. With the benefit of this new information, EPA can more comprehensively evaluate the occurrence under the CGP of demolition of structures which often contain PCBs in building materials and the need to modify the applicability of this requirement as necessary in the future.

There are a variety of controls that can be implemented to minimize the potential discharge of PCBs from demolition activities, and can also be effective in controlling the release of other hazardous substances like asbestos and lead-paint. The following examples provide guidance for operators in selecting the site-specific controls to meet this requirement in Part 3.2. These examples are not required or exhaustive. Operators have flexibility in selecting the specific controls they will implement to meet this requirement in Part 3.2, but must ensure that such controls minimize exposure of building materials to precipitation and stormwater, and ensure

<sup>20</sup> 2015. *Thea Foss and Wheeler-Osgood Waterways 2014 Source Control and Water Year 2014 Stormwater Monitoring Report*, City of Tacoma. Section 2.1.3.  
<http://cms.cityoftacoma.org/enviro/SurfaceWater/SourceControlWYRpt/Report.pdf>

<sup>21</sup> 2013. San Francisco Bay Regional Water Quality Control Board. San Francisco Bay PCBs TMDL – Implementation at Cleanup Sites.  
[http://www.waterboards.ca.gov/sanfranciscobay/water\\_issues/programs/TMDLs/sfbaypcbs/SF%20Bay%20PCBs%20TMDL%20-%20Considerations%20for%20Cleanup%20Sites%20September%205%202013.pdf](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/sfbaypcbs/SF%20Bay%20PCBs%20TMDL%20-%20Considerations%20for%20Cleanup%20Sites%20September%205%202013.pdf)

<sup>22</sup> *ibid*, p. 3.

<sup>23</sup> Summaries of Water Pollution Reporting Categories, ATTAINS parent cause category summaries, adapted from doc. no. EPA841-R-12-104, October 2012.

<sup>24</sup> National Causes of Impairment, Size of Assessed Waters with Listed Causes of Impairment, available at [https://ofmpub.epa.gov/waters10/attains\\_nation\\_cy.control#causes](https://ofmpub.epa.gov/waters10/attains_nation_cy.control#causes)

that such materials are properly disposed. Operators must also document the selected controls in the SWPPP.

- Separate work areas from non-work areas and select appropriate personal protective equipment and tools.
- Construct a containment area so that all dust or debris generated by the work remains within the protected area.
  - Apply plastic sheeting to the floor, ground, or other applicable surfaces to prevent contamination of the building interior or exterior from dust generated by the work.
  - Put all necessary tools and supplies on the protective sheeting in the work area before you begin work to avoid stepping off the protective sheeting before the work is complete.
  - Construct a decontamination area outside of the work area by placing heavy plastic sheeting on the ground. Use this area for removing personal protective equipment and for cleaning equipment used in the enclosure.
    - Every time you leave the plastic sheeting, remove disposable shoe covers, and wipe or vacuum shoes, especially, the soles, before stepping off the plastic sheeting. A large disposable tack pad on the floor can help to clean the soles of shoes.
    - Remove or vacuum off Tyvek suits when exiting the work area so the dust stays inside the work area.
- For locations where a containment area cannot be constructed, consider the following techniques:
  - Cover the ground and plants with heavy plastic sheeting to catch debris. The covering should extend at least ten feet out from the building. Secure the covering to the exterior wall with a wood strip and staples, or tape.
  - Seal off any vents or air exchange systems into the building that are located within the work area.
  - Move or cover any play areas within 20 feet of the work area.
  - To prevent debris from falling beyond the ten-foot covering when working on the second story or above, extend the sheeting farther out from the base of the building and to each side of the area where materials are being disturbed.
  - To prevent the spread of debris when work is close to a sidewalk, street, or property boundary, or the building is more than three stories high, scaffolding sides should be covered in plastic.
  - Avoid working in high winds. Otherwise, take special precautions to keep the work area contained when the wind is strong enough to move dust and debris. For example, a wind screen can be constructed of plastic at the edge of the ground-cover plastic to keep dust and debris from migrating.
- For inside work, consider placing the containment area under negative air pressure and/or using high-efficiency particulate air (HEPA).
- Use tools that minimize dust and heat (<212°F). Detailed information on tools can be found at <https://www3.epa.gov/epawaste/hazard/tsd/pcbs/pubs/caulk/guide/guide-appendix.htm>.
  - When using electromechanical tools, use HEPA vacuum attachments to contain the dust generated.
  - Use wet sanders and misters to keep down the dust created during sanding, drilling, and cutting.



- Leave the work area clean at the end of every day and at the end of the project.
  - Daily activities include:
    - Pick up as you go. Put trash in heavy-duty plastic bags.
    - Vacuum the work area with a HEPA vacuum cleaner frequently during the day and at the end of the day.
    - Clean tools at the end of the day.
    - Dispose of or clean off personal protective equipment.
    - Properly dispose of wastewater produced during the job.
  - End of project activities include:
    - Make sure all trash and debris, including building components, are disposed of properly.
    - Vacuum any exposed surfaces, including walls and ceilings, with a HEPA vacuum cleaner.
    - Mist dusty sections of the plastic sheeting with water before taking them down to keep dust from becoming airborne again.
    - Remove plastic sheeting carefully, fold it with the dirty side in, tape it shut, and properly dispose of it.
    - Visually inspect the site to ensure that no dust or debris is present and re-clean the area thoroughly if you find dust or debris.

The following are also recommended practices for minimizing PCB exposure to workers, building occupants, and community members during demolition activities:

- Use site security measures to prevent access of unauthorized persons to the work areas until after the final cleanup. Examples of security measures include:
  - Lock fence gates or doors to the work areas during off hours.
  - Place signs, barrier tape and/or cones to keep all non-workers out of the work area. Signs should be in the primary languages of the occupants, and should say "Do Not Enter - Authorized Personnel Only" and "No Eating, Drinking, or Smoking."
  - Establish a system to identify authorized persons and any limitations to their approved activities.
  - Provide a means for approving all visitors to the work area; ensure trained site personnel accompany visitors at all times and provide them with appropriate personal protective equipment.
- Close windows and doors within 20 feet of the work area to keep dust and debris from getting into the building.
- Change out of work clothing before going home, and launder non-disposable protective clothing separately from family laundry.

#### **Part 4: Site Inspection Requirements**

##### **Part 4.1: Person(s) Responsible for Inspecting Site**

Part 4.1 clarifies that it is the operator who will be responsible for ensuring that the person who conducts inspections, whether he/she is a member of the project staff or a third party, must be a "qualified person."

<b>Part 4.1</b>	<b>Permit Requirements</b>
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DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Draft PCB Chemical Action Plan**

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- Northwest Regional Office, Bellevue 425-649-7000
- Southwest Regional Office, Olympia 360-407-6300
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# Draft PCB Chemical Action Plan

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*by*

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Waste 2 Resources Program

Hazardous Waste and Toxics Reduction Program

Environmental Assessment Program

Environmental Assessment Program

Rules Unit

Rules Unit

Rules Unit

Water Quality Program

Water Quality Program

Waste 2 Resources Program

Air Quality Program

Toxics Cleanup Program

Hazardous Waste and Toxics Reduction Program

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As part of the Lower Duwamish Waterway (LDW) cleanup in Seattle, Science Applications International Corporation (SAIC) investigated PCBs in old caulk and paint in the LDW (SAIC 2011). This was part of an effort to find additional sources of PCBs in the cleanup area, especially since high levels of PCBs in paint, caulk, and other building materials had been found at the former Rainier Brewery and North Boeing Field. They detected Aroclors in 8 of 17 composite caulk samples from representative buildings with detected concentrations from 3 to 920 mg/kg. The focus was on industrial buildings from 1950-1977. As expected, they did not find PCBs in a sample from buildings built in the 1940s. Surprisingly, they reported another building in the Seattle area that was built in 1989 and contained PCBs in caulk up to 1000 mg/kg. The use of PCBs in caulk in North America has not been reported this late. The number of samples with detectable PCBs (47%) is in agreement with the larger comprehensive study in Switzerland (Kohler *et al.* 2005).

#### *Estimate in Washington*

The report on sources of toxic chemicals released in the Puget Sound Basin (Ecology 2011b) estimated 59 metric tons of PCBs are in building sealants in that area with about 110 kg released annually. This estimate was based on the number of existing masonry commercial buildings that were built between 1945 and 1980, the average size of those buildings and the distribution of PCB concentrations in caulk found in the more comprehensive survey by Kohler *et al.* (2005). This is likely to underestimate the amount of PCBs in sealants because it does not consider all uses in buildings, such as around windows, uses in residential buildings, or in other structures, such as bridges and sidewalks. The annual release estimate was based on a release rate coefficient of 0.0018/yr from long term loss rates in Robson *et al.* 2010.

The estimate for the Puget Sound Basin was based on detailed information about buildings in Pierce and Snohomish Counties and then scaled up to the rest of the study area by population. The estimated volume of masonry buildings built from 1945 to 1980 in Pierce and Snohomish Counties was 21,941,562 m<sup>3</sup>. To estimate PCBs in caulk for the state we scaled up the volume of masonry commercial buildings that were built between 1945 and 1980 by population, leading to an estimate of 97,702,645 m<sup>3</sup> with 5,373,645 kg of caulk for the state.

The large study in Switzerland (Kohler *et al.* 2005) found 48% of the targeted buildings had PCB-containing sealants. Applying this to the state estimate on sealants leads to 2,573,976 kg of PCB-containing sealants. The PCB concentration ranges from Kohler *et al.* (2005) were applied to the estimated mass of PCB-containing sealants in Washington, yielding an estimate of 87 metric tons of PCBs in sealants in Washington with 157 kg released annually (Table 17).

Table 17. Estimates from caulk

sealant quantity (kg)	sealants with PCBs (kg)	PCB conc bin (mg/kg)	bin mid point	% for each bin	PCB quantity (kg)	Annual releases (kg)
5,373,645	2,573,976	20-50	35	0.121	11	
		50-100	75	0.0772	15	
		100-1,000	550	0.1899	269	
		1,000-10,000	5,500	0.1815	2,569	
		10,000-100,000	55,000	0.2316	32,787	
		>100,000	100,000	0.2003	51,557	
Total				1.0	87,208	157

In addition, PCBs are released into the environment during renovation and demolition of buildings that contain PCBs in caulk and other building materials. In order to estimate this we need to know how many buildings of that age and construction type are demolished or renovated in the state, which we do not know.

#### *Opportunities for Reduction*

- Status quo
  - PCBs may be found and remediated during source identification efforts.
- Require removal or remediation of all PCB containing caulks, statewide.
- Develop best practices for demolition and renovation.
- Investigate the status of PCB containing materials in schools.
- Remove or remediate PCB-containing caulk in schools.
- Partner with EPA and federal facilities to identify and remove caulk and other PCB-containing materials.

Many schools in Washington were built when PCBs were used in caulk, lighting ballasts, paint, and other building materials. EPA has information on PCBs in caulk and other building materials that includes how to test for PCBs and how to safely remove PCB-containing materials (<http://epa.gov/pcbsincaulk/index.htm>). Their outreach has been focused on schools, due to the sensitivity of developing children. There are reports of methods for removing PCBs where more than 99% of the PCBs in caulk were captured following the use of BMPs specifically aimed at preventing PCB releases (e.g., Sundahl *et al.* 1999).

Caulk, other building materials, and other historic uses of PCBs are found on Navy vessels and other military equipment (EPA 2006). This is an opportunity for Ecology to partner with EPA and federal facilities to expand PCB source identification and removal activities.

## Inadvertent generation in new products

PCBs are no longer intentionally manufactured in the U.S. and the manufacture, processing, and distribution in commerce of PCBs at concentrations of 50 ppm or greater is not allowed. EPA promulgated a rule under TSCA in 1984 for inadvertent generation of PCBs that are not in closed or controlled manufacturing processes (49 FR 28172). The concentration of inadvertently generated PCBs in products must have an annual average of < 25 ppm, with a maximum of 50 ppm. In addition, EPA required manufacturers with processes inadvertently generating PCBs and importers of products containing inadvertently generated PCBs to report to EPA any process or import for which the PCB concentration is greater than 2 mg/kg for any resolvable PCB gas chromatographic peak. More details on TSCA are in the section on Regulations.

As part of this rulemaking on inadvertently generated PCBs, EPA generated a list of 200 chemical processes with a potential for generating PCBs (Appendix D) and narrowed it to 70 with a high potential to inadvertently generate PCBs. The list does not include every process that inadvertently generates PCBs and not everything on the list inadvertently generates PCBs. In general, PCBs can be produced when chlorine and carbon are present with elevated temperatures or catalysts.

The final rule also includes an estimated annual production of inadvertently generated PCBs of 100,000 lbs (45,400 kg). Scaled to population, Washington's share of that would be about 900 kg a year. Only 11% of the PCBs were estimated to enter products, or 100 kg annually in Washington. As the economy has grown over the last 30 years, the amount of inadvertently generated PCBs may also have grown. The 100,000 lbs was an estimate from a consensus proposal from the Environmental Defense Fund, Natural Resources Defense Council, and Chemical Manufacturers Association (now known as the American Chemistry Council) that included all inadvertent generation of PCBs, without being broken down into how much came from each process. Products that are mentioned include paints, printing inks, agricultural chemicals, plastic materials and detergent bars. The 1982 economic analysis for this rule mentions 135 manufacturing processes that generate PCBs at less than 50 ppm from a Chemical Manufacturers Association survey. The economic analysis also includes a list from EPA of about 20 "end-products of manufacturing processes in which PCBs are incidentally generated."

In their rule on inadvertent production, EPA specifically mentions surfactants as the component of detergent bars that is likely to contain PCBs. EPA also mentioned PCBs are likely to be in surfactants in skin lotions and creams that are regulated by the FDA. We have no estimate for how many PCBs are inadvertently produced in surfactant.



## Historic PCB-Containing Building Materials

### 1. Survey and assess PCB-containing lamp ballasts in schools and other public buildings. Encourage replacement with more energy efficient PCB-free fixtures.

*Goal: Remove remaining PCB lamp ballasts from schools and other publically owned buildings*

Prior to 1979, PCBs were widely used in fluorescent lamp ballasts, including those in use at schools and other public buildings. The pre 1979 ballasts have likely outlived their useful life and are at high risk for failing (dripping, smoking, and catching fire). Ballast failures can expose children and others that frequently use public school buildings to concentrated PCB oils and PCBs in the air.

Currently, there is no easily accessible source of information on how many buildings are of the age and construction type likely to have PCB-containing light ballasts. Accordingly, the first step towards implementing recommendation number one is to conduct a survey of the 295 school districts in Washington to identify how many of the approximately 8,800 school buildings have PCB containing light ballasts. Ecology would use the survey results to construct a database with information on construction and renovation dates. Ecology would first use the database to determine which schools might contain PCB containing light ballasts.

Ecology anticipates that this recommendation would require an additional FTE at Environmental Specialist 3 (ES3) level. One FTE at ES 3 level would cost \$91,244 annually. We employed Washington state employee pay grades at step H (DOP 2014) and standard overhead cost assumptions used for legislative fiscal notes and related estimation (Ecology 2014). Wage estimates include the following adjustments for overhead expenses:

- Benefits of 33.0 percent of wage
- Goods and services of \$5709 annually, or \$2.74 per hour
- Travel costs of \$1394 annually, or \$0.67 per hour
- Equipment costs of \$1131 annually, or \$0.54 per hour
- Indirect costs of 32.25 percent of wages and benefits

Ecology envisions this person would split time between working towards this recommendation and working towards recommendation five below. Because the staff person would work on two goals, we estimate the cost of this recommendation based on the time spent (.75) on this recommendation, which means this recommendation would cost \$68,433 annually. Ecology anticipates that work on this recommendation could span two years (FY 2016- FY2017) for a total estimated cost of \$136,866.

Estimating the cost of replacing the light ballasts to school districts is not possible without knowing how many schools might contain PCB containing light ballasts, the condition of the light ballasts, and the extent of the problem within each building. However, replacing old, potentially dangerous light ballasts not only reduces the risk of exposure for children and others that use the school buildings frequently, it also reduces energy costs. Accordingly, it makes sense to combine PCB removal with initiatives to increase energy efficiency rather than create a new program just for removal of PCB-containing ballasts.<sup>32</sup>

## **2. Develop and promote best management practices for containment of PCB-containing materials in buildings currently in use and those slated for demolition.**

*Goal: Reduce exposure to people from PCBs in historic building materials and prevent PCBs in building materials from getting into stormwater.*

Historically, PCBs were used at high levels in some caulks and paints. Studies in other areas have shown the widespread occurrence of PCB-containing caulk in buildings, especially masonry buildings. Smaller sampling efforts in Washington support this conclusion.<sup>33</sup> Accordingly, developing best management practices and other materials to provide guidance for renovation and demolition of buildings that contain PCB materials would prevent the release of PCBs into the environment.

The first step toward preventing PCBs in building materials from getting into the environment is to compile, compose, and distribute information concerning best management practices for containment of PCB-containing materials. Based on available data in Washington, other government programs, and the scientific literature, Ecology would develop BMPs for containing PCBs to prevent exposure during the life of the building and during remodeling or demolition. Ecology should also provide education and outreach on BMPs to local governments and those in the building trades.

Ecology estimates that developing the best management practices would require an additional full time employee (FTE) Environmental Specialist 3 (ES3) over a two-year period. We employed Washington State employee pay grades at step H (DOP 2014) and standard overhead cost assumptions used for legislative fiscal notes and related estimation (Ecology 2014). 1.0 FTE

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<sup>32</sup> Since 2009, the Legislature has provided money to the Office of the Superintendent of Public Instruction (OSPI) and the Department of Commerce to support energy efficiency measures in schools and other public buildings. If the grant programs are not funded, the legislature could establish a fund to help offset the costs of replacing PCB-containing lamp ballasts.

<sup>33</sup> For example, studies suggest that buildings with PCB-containing materials exist in the Duwamish basin. In addition, source tracing from cleanup efforts in Tacoma revealed PCBs in sidewalk and building caulk.

at ES 3 would cost \$91,244 annually. Wage estimates include the following overhead and benefits:

- Benefits of 33.0 percent of wage
- Goods and services of \$5709 annually, or \$2.74 per hour
- Travel costs of \$1394 annually, or \$0.67 per hour
- Equipment costs of \$1131 annually, or \$0.54 per hour
- Indirect costs of 32.25 percent of wages and benefits

While working on the best management practices, Ecology would **also** work to compile existing information into a PCB Source Control Guidance Manual to **aid** Local **Source** Control work. A number of urban waters programs around the northwest have completed **PCB** source identification work. However, to date, the lessons learned from each of these programs remains dispersed and unavailable on a broad scale.

Ecology estimates that work on the best management practices and source control manual would last approximately two years (FY 2016-FY 2017) and result in total staff costs of \$182,488.

### **3) Assess schools and other public buildings for the presence of PCB-containing building materials.**

*Goal: Reduce children's exposure to PCB-containing building materials.*

*Goal: Prevent PCBs in building materials from getting into stormwater.*

Many buildings constructed prior to the ban of PCBs include materials, such as caulk, paint, and light ballasts that often contain high levels of PCBs. Industrial buildings, including schools, are more likely to contain PCB contaminated materials than residential buildings. Other states have found high levels of PCB contamination in schools. Because children are more sensitive to PCBs and many school buildings are owned publicly, Ecology recommends assessing public schools for possible PCB contamination first and expanding the effort to include other buildings, as appropriate.

To our knowledge, school districts in Washington have not systematically tested schools for PCBs. Schools built prior to 1980 are more likely to contain material with PCBs. The first step in assessing public school buildings that contain PCB material is to construct a centralized database based on information provided by school districts. The database would contain information on the date of construction and dates of renovation for each school building in Washington. The database would serve as a mechanism to identify schools, based on construction date, that require testing for PCBs. Initial testing would include visual inspections and then physical testing where

appropriate. Ecology would use the database and test results to determine the scope of the problem in Washington and plan accordingly.

Ecology estimates that the person retained to compile information on PCB light ballasts in schools would compile the database for schools materials, as well. Ecology anticipates that the FTE at Environmental Specialist 3 (ES3) level at \$91,245 (annually) would spend two years (FY 2016-FY2017) focusing on light ballasts, and then expand those database efforts to include other building materials (FY 2018-FY2021).

We employed Washington State employee pay grades at step H (DOP 2014) and standard overhead cost assumptions used for legislative fiscal notes and related estimation (Ecology 2014). Wage estimates include the following overhead and benefits:

- Benefits of 33.0 percent of wage
- Goods and services of \$5709 annually, or \$2.74 per hour
- Travel costs of \$1394 annually, or \$0.67 per hour
- Equipment costs of \$1131 annually, or \$0.54 per hour
- Indirect costs of 32.25 percent of wages and benefits

Ecology appreciates the time and budget constraints facing school districts across the state. However, this recommendation would not require schools districts to generate new reports or information. We assume that school districts know information concerning construction and renovation of school buildings from routine recordkeeping, operations, and maintenance documents. Accordingly, we do not expect a cost to school districts to submit documents to Ecology for the database beyond minimal expenditures of time and resources to submit construction records to Ecology.

After compiling the data base and conducting initial testing, Ecology would work with school districts to plan and coordinate remediation efforts at schools that have PCB contaminated materials. There is no one size fits all approach to remediation projects for buildings containing PCBs (Environmental Health & Engineering 2012). Depending on the extent of contamination, schools decide whether to pursue abatement (reducing the amount of PCBs in building materials permanently) or mitigation (controlling exposure) procedures. Regardless of the remediation technique, schools would need to work with local health agencies, Ecology, and EPA to meet removal criteria and follow hazardous waste regulations.

Estimating the cost of remediating school buildings in Washington is not possible without knowing the scope (number of schools and extent of remediation needed) of the problem. The number of school buildings and extent of work necessary to bring a building in compliance would determine bids from contractors and others involved in remediation activities. In addition, remediation activities generally involve mandated testing procedures, extensive planning,

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# Office of Sustainability & Environment

Jessica Finn Coven, Director

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## Programs & Policies

## What You Can Do

## Incentives & Rebates

## Resources



Central Library, Downtown Seattle by Linda Banning



## RELATED DOCUMENTS

### High Performance City Buildings

- [Resource Conservation Management Plan](#)
- [2013-14 City Building Energy Disclosure Report](#)
- [2012-13 City Building Energy Disclosure Report](#)
- [2011-12 City Building Energy Disclosure Report](#)
- [Sustainable Buildings Policy](#)
- [City Projects](#)



## CITY FACILITIES

### Leading by Example

The City of Seattle owns and maintains over 650 buildings totaling approximately 10 million square feet and each year new facilities are added or old ones remodeled. In addition, the City manages over 110,000 acres of public land. To reduce its environmental impact, the City has adopted policies and programs addressing new building construction and major renovations, as well as day-to-day operations.

### City Buildings

- The **Sustainable Buildings and Sites Policy** covers new construction, renovations and tenant improvements
- The **Resource Conservation Initiative** aims to improve the energy performance of our existing facilities
- 

### Grounds Management

- Seattle Parks & Recreation **Pesticide-Free Parks and Pesticide Reduction**
- Citywide **Pesticide Use Reduction** program (archived page with program history, also links to the 2001 Landscape and Grounds Management Policy)



## FEATURED RESOURCE

### Capital Green Toolkit

**Capital GREEN** outlines environmentally responsible strategies that apply toward City of Seattle capital projects.

### Procurement

- The **Green Purchasing Initiative**, led by the Finance & Administrative Services department to implement the City's commitments to promoting environmental stewardship and reducing greenhouse gas emissions when buying goods, materials, services and capital improvements, including:
  - **Sustainable Purchasing Policy (PDQ)**
  - **Chemical Use Policy (doc)**, adopted in **Council Resolution 29268**
  - **Recycled Content Procurement Policy, SMC 20.60.204**

### Fleets

- **Green Fleet Management**



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# ANNUAL REAL PROPERTY REPORT

PURSUANT TO COUNCIL ADOPTED RESOLUTION:  
PROCEDURES FOR THE EVALUATION OF THE REUSE AND DISPOSAL OF THE CITY'S REAL PROPERTY

From Boundary Dam...Garfield Community Center...Fire Station 6...To Haller Lake Shops



The City of Seattle has a diverse property inventory

May 23 , 2014

Finance and Administrative Services (FAS)

# A Few Facts and Figures

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Number of Property Management Areas ➤ 1,325

(PMAs):

Number of PMA's with City ownership ➤ 1,194

interest:

Total Land with City property rights:

➤ 5.1 billion sf.

➤ 119,275 acres

Land Area within City limits:

➤ 289 million sf.

➤ 6,635 acres

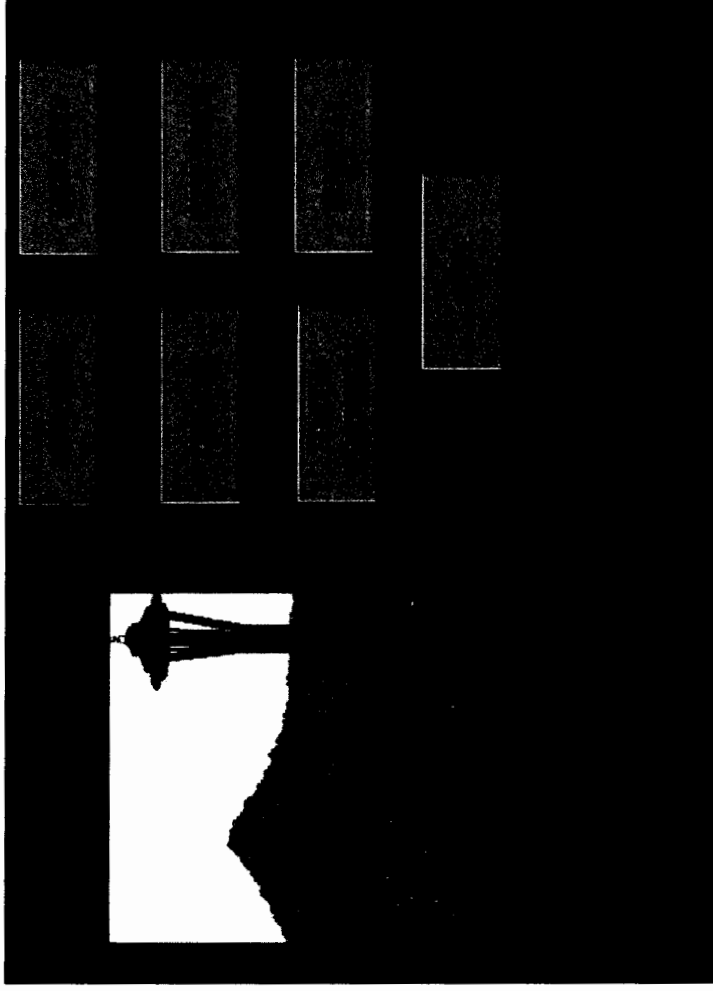
Number of Buildings:

➤ 1,335

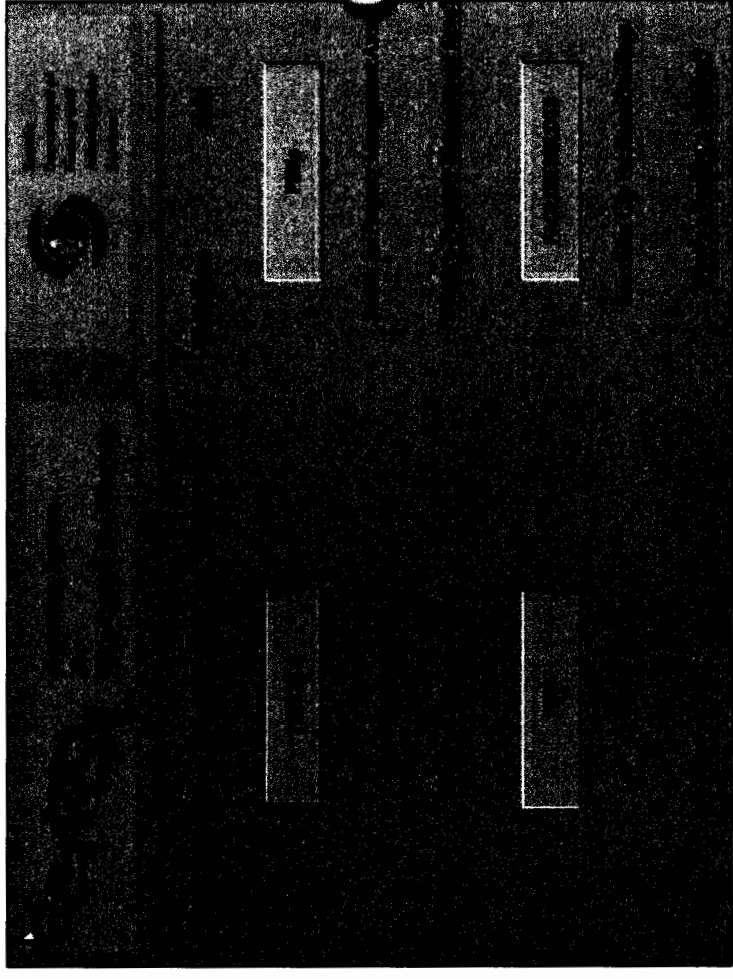
# Real Property Asset Management Information System

## 3 | Central data base on City owned real property

- Tracks Property Management Areas, Acquisition Parcels, Tax Parcels, Facilities, Buildings, and Related Documents



Full Database



Inweb Access (limited data)

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## Sustainable Buildings and Sites Policy

### **1. Goal**

The goal of a Citywide policy on sustainable buildings and sites is to maximize the environmental quality, economic vitality, and social health of our city through the design, construction, operation, maintenance, renovation, and decommissioning of our buildings and sites. This policy also demonstrates the City's commitment to addressing climate change and creating a sustainable future by protecting, conserving, and enhancing the region's environmental resources; to providing leadership in setting community standards for sustainable development; to providing responsible stewardship of the City's fiscal resources and public assets over time by leveraging our investments to create financial, public and environmental value; and to creating quality environments that are healthy and provide community benefit.

Sustainable buildings and sites support overall City objectives by making efficient use of limited energy, water, and material resources; reducing climate change; minimizing pollution and hazardous materials; creating healthy indoor environments; reinforcing natural systems; providing habitat; creating vibrant spaces for people; and contributing to their neighborhoods.

### **2. Organizations Affected**

All City departments and offices, and their contractors, responsible for planning, financing, designing, developing, constructing, occupying, or managing buildings and sites shall meet the requirements of this policy.

All non-City entities receiving more than 50% of their total funding for building construction, additions, renovations, and tenant improvements from the City of Seattle shall meet the requirements of this policy or an alternative standard approved by the Sustainable Buildings and Sites Steering Committee. Entities receiving funding for affordable housing development through the Seattle Office of Housing shall meet the requirements of the Evergreen Sustainable Development Standard rather than the standards outlined in this policy.

### **3. Guidelines for Planning, Designing, and Financing Projects**

The development of sustainable buildings and sites requires an integrated and holistic approach to assessing performance and value in order to meet multiple goals and maximize the efficiency of multiple systems. In order to meet this challenge, projects are strongly encouraged to utilize the following key concepts and frameworks in planning, financing, designing and constructing sustainable buildings and sites.

Triple Bottom Line: the value or success of a project, program, or action considering costs and benefits in terms of environmental, economic, and social impacts.

Life Cycle Cost: the total cost of ownership over the life of an asset. Life cycle cost can be used to evaluate a complete building or site as well as an individual product, process, or service. Life cycle cost takes into account all costs of acquiring, owning, and disposing of an asset in order to maximize return on investments and achieve the highest, most cost-effective performance possible. Life cycle cost assessment often utilizes the concept of net present value where the incremental costs and the associated savings are calculated over the life of the asset and identified as the current financial cost or savings.

Integrated Design Process: a collaborative method for designing buildings which emphasizes the development of a holistic design. Integrated design processes require multidisciplinary collaboration, including key stakeholders and design professionals, from conception to completion and involve a “whole building design” approach in which a building is viewed as an interdependent system, as opposed to an accumulation of its separate components (site, structure, systems and use). The goal of looking at all the systems together to is make sure they work in harmony rather than in conflict with each other. Projects utilizing an integrated design process approach undertake systems analysis during early design phases and integrated design workshop(s) at multiple stages of the project’s development.

### **4. Building Project Standards**

It shall be the policy of the City of Seattle to plan, finance, design, construct, manage, renovate, operate, maintain, and decommission its buildings in a sustainable manner. To work toward this goal, all buildings, or portions of buildings, owned by, leased by, or leased to the City of Seattle as well as buildings, or portions of buildings, receiving 50% of their funding from the City of Seattle shall meet the following minimum requirements, to the maximum extent practicable.

Projects that have begun schematic design by the effective date of the policy are exempted from meeting the standards of sections 4.1 and 4.2 but are strongly encouraged to meet the goals of this policy to the greatest extent feasible.

#### 4.1. New Construction, Additions, and Major Renovations

##### LEED

All projects constituting new construction, an addition or a major renovation of a City-occupied, City-owned building and impacting 5,000 or greater gross square feet shall meet a minimum LEED Gold rating through the appropriate rating system, as well as the following standards:

- Achieve a modeled energy use intensity performance that is a minimum of 15% more efficient than a baseline building meeting the 2009 Seattle Energy Code;
- Achieve projected water use performance that is a minimum of 30% more efficient (not including irrigation) than a baseline building meeting the 2009 Uniform Plumbing Code;
- Achieve a 90% waste diversion rate for construction involving demolition and a 75% waste diversion rate for construction not involving demolition; and
- Provide bicycle parking and changing/showering facilities appropriate to accommodate expected future demand.

Projects are strongly encouraged to utilize WaterSense plumbing fixtures. Projects requiring flushometer toilets and for which WaterSense fixtures are not available are encouraged to install toilets meeting code flush rates and to utilize rainwater harvesting or greywater to assist in meeting the 30% efficiency standard. If a City department, in consultation with the Steering Committee, determines that the cost of achieving a 30% water reduction has a payback beyond fifteen years the project may be exempted from the water performance standard.

The Department of Planning and Development's City Green Building may identify LEED credits or equivalent standards that meet these goals in order to accommodate alternative compliance pathways. Projects may achieve Living Building Challenge certification as a substitute for meeting a LEED Gold rating and additional standards.

Design and project management teams are encouraged to meet higher sustainability standards such as LEED Platinum, the Living Building Challenge, or net-zero energy.

Major renovations are projects that include both significant modifications to the building envelope and an overhaul of the HVAC system.

#### Capital Green

All projects constituting new construction, an addition or a major renovation of a City-occupied, City-owned building, but impacting less than 5,000 gross square feet, as well as those projects not eligible for a LEED rating, shall include the completion of a Capital Green checklist in order to assess opportunities for incorporating sustainable building features in the project.

#### 4.2. Minor Renovations and Tenant Improvements

##### LEED

All projects constituting a minor renovation or tenant improvement of a City-occupied, City-owned building, that both impacts 5,000 or greater gross square feet and involves substantial modification to all three of the major systems – mechanical, electrical, and plumbing – shall achieve a LEED Gold rating through the appropriate rating system, as well as the following standards:

- Achieve projected water use performance that is a minimum of 30% more efficient (not including irrigation) than a baseline project meeting the 2009 Uniform Plumbing Code;
- Achieve a 75% waste diversion rate for construction involving demolition and a 60% waste diversion rate for construction not involving demolition;

Projects are strongly encouraged to utilize WaterSense plumbing fixtures. Projects requiring flushometer toilets and for which WaterSense fixtures are not available are encouraged to install toilets meeting code flush rates. If the City department, in consultation with the Steering Committee, determines that a 30% water reduction is not achievable using code minimum flushometer toilets the project may be exempted from the water performance standard.

The Department of Planning and Development's City Green Building may identify LEED credits or equivalent standards that meet these goals in order to



accommodate alternative compliance pathways. Projects may achieve Living Building Challenge certification as a substitute for meeting a LEED Gold rating and additional standards.

Design and project management teams are encouraged to improve the energy efficiency of their individual project by either substantially exceeding code or by meeting or exceeding the Citywide portfolio goals for existing buildings identified in Section 5. Participation in an energy target-setting and benchmarking program such as Energy Star or the 2030 Challenge is strongly encouraged to identify appropriate design goals.

Design and project management teams are encouraged to meet higher sustainability standards such as LEED Platinum, the Living Building Challenge, or net-zero energy.

Substantial modification to the mechanical system means the addition or replacement of heating or cooling equipment serving 50% or more of the heating or cooling load for the tenant space.

Substantial modification to the electrical system means the addition or replacement of 20% or more of the fixtures, or 20% or more of the lamps plus ballasts within the tenant space.

Substantial modification to the plumbing system means addition or replacement of 50% or more of all plumbing fixtures within the tenant space, or the addition of an on-site water collection system that reduces potable water use.

#### Capital Green

All projects constituting a minor renovation or tenant improvement by a City department of a City-occupied, city-owned building that either impacts less than 5,000 gross square feet or does not involve substantial modifications to mechanical, electrical, and plumbing systems shall include the completion of a Capital Green checklist in order to assess opportunities for incorporating sustainable building features in the project.

#### 4.3. Non-City entity occupying City owned buildings

Non-City entities which occupy City-owned buildings should be encouraged to meet the standards of sections 4.1 and 4.2. At a minimum, City departments shall work with these entities to assess opportunities for incorporating sustainable building features in tenant improvement projects in keeping with the goals of this policy.

**4.4. City occupying non-City owned buildings**

When a City department occupies a building owned by a non-City entity, the City department shall meet the standards of sections 4.1 and 4.2 unless the City department, in consultation with the Steering Committee, determines it is infeasible based on specific circumstances.

**5. Buildings Management**

City departments shall, independently and in cooperation with each other, seek opportunities to maximize the energy and water efficiency of existing City-owned buildings, consistent with the City's climate protection goals.

**6. Sites**

City Departments shall follow landscape best management practices that promote the environmental, economic, and social health of our city. Each City department should use best management practices that are appropriate for their specific properties while coordinating with other departments to promote consistent practices and ensure high performance City-wide. Best management practices shall, at a minimum, consider opportunities for:

- Reducing the energy use of fleets and equipment by using energy efficient products and minimizing transportation of soil and other materials
- Reducing water use from irrigation
- Reducing runoff pollution by minimizing the use of pesticides and fertilizers
- Using green infrastructure to, minimize stormwater run-off, reduce urban heat island effects, and provide habitat
- Selecting landscape materials and site furnishings that are sustainable
- Controlling invasive species and promoting native species
- Addressing issues of crime and safety
- Creating opportunities for environmental education

All projects constituting the development or major renovation of park property owned by Seattle Parks and Recreation shall include completion of an Ideal Green Parks checklist.

## **7. Pilot Projects**

City departments are requested to seek opportunities to initiate pilot projects that can demonstrate higher levels of environmental performance and evaluate the effectiveness of alternative rating systems. Departments should commence design on the following specific pilot projects by 2015:

- Six Sustainable Sites Initiative pilot or certified projects including two projects on Parks property, two projects in the right-of-way, and two projects outside of parks and the right-of-way;
- One Living Building Challenge certified project.

## **8. Additional City Priorities**

While building and site standards and rating systems tend to focus on environmental and human health, there are many other City-wide goals that should be considered in order to maximize the total environment, social, and economic benefits of buildings and sites. In addition to the standards above, departments are requested to seek to implement the following goals where appropriate:

- ***Design Quality***: strive for design excellence developing designs that respond to the site and neighborhood, integrate the numerous design disciplines, meet the needs of its constituencies, including children and people with disabilities or from other cultures, are timeless and enduring, incorporate sustainability principles, encourage walkability, and reflect the prudent use of public resources
- ***Transportation Impacts***: discourage single-occupant-vehicle commuting by locating facilities in areas of high transit service, limiting available on-site parking, and setting parking fees to reflect the true cost of parking
- ***Climate Adaptation***: consider how changing climate conditions, including temperature, precipitation and sea level, could impact the project and its function over its lifetime and consider design options to enhance the resiliency of the project to these changes.
- ***Art***: assess opportunities to incorporate art by including an artist on the design team, integrating commissioned art into the building and site design, and/or including art programming in interior and public spaces
- ***Urban Forestry***: support the City of Seattle's canopy cover goals, contained in the Urban Forest Management Plan, by seeking to maximize the canopy cover potential of sites where compatible with proposed uses

- **Public Safety:** maximize public safety by considering access restrictions, incorporating appropriate interior & exterior lighting, minimizing empty or unused spaces, supporting eyes on the street, and following Crime Prevention Through Environmental Design (CPTED) guidelines
- **Co-location:** consider opportunities to co-locate multiple uses on City property, including housing, offices, libraries, community centers, police stations, fire stations, gardens, public meeting space, etc., in order to maximize the value of City property
- **Deconstruction:** utilize deconstruction and materials salvage when removing any structure; design buildings in order to allow deconstruction at the end of their lifetime in order to allow more complete reuse or recycling

## 9. Procedures and Responsibilities

### 9.1. Sustainable Buildings and Sites Steering Committee

The City shall put in place a Sustainable Buildings and Sites Steering Committee whose responsibilities include the ongoing implementation and evaluation of this policy. The Steering Committee will be staffed by The Department of Planning and Development's City Green Building and will consist of representatives from each of the City's capital departments and the Office of Sustainability and Environment.

The Directors of City departments whose responsibilities include planning, financing, designing, constructing, operating, maintaining, renovating or decommissioning City-owned facilities shall designate one or more members to the Steering Committee. Committee members are expected to regularly attend meetings, to assist with the responsibilities of the committee, and to communicate the work of the Steering Committee with their individual departments.

A Sites Sub-committee of the Steering Committee shall be established to assist with the development of the sustainable site management guidelines identified in 4.5. The Sites Sub-committee shall be staffed by City Green Building and consist of representatives from each of the City's capital departments responsible for the planning, finance, design, construction and ongoing maintenance of sites. The Sites Sub-committee shall be responsible for reviewing the existing site management policies used by departments; developing City-wide best management practices that are relevant to all departments; coordinating trainings to ensure

appropriate implementation of the policy; and the ongoing evaluation of and updates to City-wide guidelines.

## 9.2. Departmental Responsibilities

Each City department is responsible for complying with this policy in each of the facilities they own and/or occupy. City capital project managers shall plan and implement capital projects consistent with this policy.

All capital construction which falls under this policy shall be budgeted to meet the required standards. Budget planning to achieve higher sustainability standards is encouraged.

City capital departments shall promote compliance with this policy by existing and prospective tenants. Departments shall adapt leasing processes, including site selection criteria, requests for proposals, maintenance and operations agreements and leasing contracts, to reflect the goals of this policy.

City capital departments shall report annually on their work to meet the Sustainable Buildings and Sites Policy. No later than March 31 of each year, each department responsible for capital improvements shall submit a report to The Department of Planning and Development's City Green Building detailing the sustainable buildings and sites work for the previous year. The report should include identification of completed, ongoing and planned projects subject to this policy. For completed projects subject to LEED, the report should include information such as: project characteristics including use, size, and scope of work; green approaches incorporated into the project; total development and construction costs; the incremental cost for LEED documentation and certification; incremental costs and savings for green strategies, if known, including utility incentives and projected yearly utility savings; and energy and water usage and utility costs for three years after occupancy. Information provided on completed projects subject to Capital Green would include information such as: the scope of work; the Capital Green checklist for the completed project; project costs; any known incremental costs for green strategies; and energy and water usage and utility costs, if relevant.

City departments implementing a LEED project shall assign LEED on-line access to City Green Building staff to allow City Green Building to compile data on LEED credits and achievements for the full portfolio of the City's LEED projects.

### 9.3 City Green Building, Department of Planning and Development, Responsibilities

City Green Building shall assist departments in the implementation of this policy by establishing and participating in the Steering Committee and Sites Subcommittee, developing implementation guidelines, helping to coordinate training and providing general assistance.

City Green Building shall develop a standard reporting tool for annual reports from departments and shall compile an annual progress report based on the information provided by the individual departments. City Green Building shall conduct periodic evaluations of the appropriateness and effectiveness of the policy.

City Green Building, in coordination with City departments engaged in leasing, shall develop model leasing language and/or tools that can be adapted to the City's leasing processes. Leasing language and tools should include environmental performance goals in such areas as site selection, tenant improvements, requests for proposals, building rules, and operations and maintenance.

City Green Building, in coordination with Finance and Administrative Services, shall evaluate and recommend improvements to Capital Green towards improving the utility of this resource in helping departments meet the goals of this policy.

## 10. Sustainability Rating Systems

2030 Challenge: a series of phased energy consumption performance targets issued by Architecture 2030 for new and existing buildings created with the goal of keeping global average temperature below 2°C above pre-industrial levels. Targets are measured against regional or country averages for that building type. The targets for new buildings are a 60% reduction beginning in 2010, with incremental targets every 5 years until reaching carbon neutrality in 2030. For existing buildings the target reduction is 10% by 2015 with incremental targets reaching a 50% reduction by 2030.

Capital Green: an evaluation tool developed by the City of Seattle to assist project managers and consultants identify and implement sustainable approaches in small scale projects, including: new construction, additions and renovations, tenant improvements and equipment replacement. Capital Green is designed to encourage the use of high

performance methods and conservation efforts in the areas of site, water, energy, climate, materials and indoor environmental quality.

Evergreen Sustainable Development Standard (ESDS): a sustainable building standard for Washington State affordable housing projects. ESDS was developed by the Washington State Department of Commerce, in partnership with the Seattle Office of Housing, to promote public health, energy conservation, operational savings and sustainable building practices. The ESDS requires a minimum level of sustainable performance for all projects funded through the Housing Trust Fund. All projects funded through the Seattle Office of Housing are also required to meet the Evergreen Standard.

Ideal Green Parks: a scoring system developed by Seattle Parks and Recreation and the University of Washington. It is designed to reduce the negative impacts of parks on the environment while maximizing positive impacts. Credits focus on efficient use of resources and increasing the longevity of Parks investments.

LEED (Leadership in Energy and Environmental Design) Rating System: a green building rating and certification system, developed by the U.S. Green Building Council (USGBC). LEED evaluates environmental performance from a whole building perspective, including sites, water efficiency, energy & atmosphere, materials & resources, indoor environmental quality, locations & linkages, awareness & education, innovation in design, and regional priority. Projects are rated according to their level of environmental performance: Certified, Silver, Gold or Platinum. As of 2011, the LEED rating system consists of nine separate but coordinated rating systems: New Construction; Core & Shell; Commercial Interiors; Schools; Healthcare; Retail; Existing Building Operations & Maintenance; Homes; and Neighborhood Development.

Living Building Challenge: a sustainable building certification program developed by the International Living Building Institute, that focuses on a performance-based, prerequisite-only approach to certification with the aim of producing buildings that are not merely less harmful than conventional building but actually contribute positively to their surroundings.

Sustainable Sites Initiative (SITES): a rating and certification system for the design, construction, operations and maintenance of sustainable landscapes. Developed by the American Society of Landscape Architects, the Ladybird Johnson Wildflower Center, and the United States Botanic Garden, SITES measures environmental performance related to water, soil, vegetation, materials selection, and human health and well being. As of 2011, SITES is in pilot phase, with final public release planned for 2013.

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# Seattle Department of Construction & Inspections

Nathan Torgelson, Director

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## PERMITS CODES & RULES TOOLS & RESOURCES

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## Construction Permit - Addition or Alteration

### What Is It?

You need a construction permit to remodel or add onto your building, whether it is a single-family house, multifamily building, or a commercial or industrial building. New structures that are accessory to an existing house, such as a backyard cottage, are considered additions.

- An addition involves changes to the outside of the building, such as adding floor area
- A remodel (also known as an alteration) is when you make changes to the building's interior, like moving non-structural walls

Examples of common projects are adding a second floor, creating another living unit in your home, or remodeling a building for a new business.

- [Tip 100, Getting a Multifamily or Commercial Construction Permit from Seattle DCI](#)
- [Tip 101, Getting a Single Family Building Permit from Seattle DCI](#)
- [Tip 102, Getting a Small Business Use & Construction Permit from Seattle DCI](#)
- [Tip 312, Decks, Fences and Arbors for Single Family Homes in Seattle](#)

### How Much Does It Cost?

Fees are based on the value of your project. You pay approximately 75 percent of your fee when you submit your

### What Do You Want To Do?

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#### Check Status

### Still Need Help?

#### Ask Us

Call us at (206) 684-8850

#### Online

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plans and the rest when you pick up your permit. Use our fee estimator to estimate how much your permit will cost. We will also charge hourly fees for certain reviews, such as drainage and geotechnical; see our Fee Subtitle for details.

#### Fee Subtitle

## How Long Does It Take?

We try to finish our initial review of simple permit applications in 2-3 weeks and complex permits in 8 weeks.

How long it takes to get the final permit depends on how complex your project is and how many corrections, if any, you need to make.





If you have a small project, you may be able to get a same-day permit called a subject-to-field-inspection permit.

## Steps to Get Your Permit

Expand all

### 1. Research

**Get your property information.** Find property information to help you plan your project.

-  Use our **Address Search for Property Information** to find zoning and environmentally critical areas information
-  Check **Permit and Complaint Status** for recent permits or violations on your property
-  Visit the **Microfilm Library** for older permit information not available on the web
-  Use the **King County Department of Assessments** address search to get your assessor's parcel number (APN)

#### Tip 233, Sources for Property Information

**Determine restrictions to your project.** Research our codes to determine building size limits and construction and life / safety requirements.

- 1 Environmentally Critical Areas Code
- 1 Land Use Code
- 1 Seattle Residential Code
- 1 Seattle Building Code
- 1 Zoning Information

- 1 Tip 220, Lot Coverage, Height and Yard Standards for Homes in Single Family Zones
- 1 Tip 314, Seattle Building Code Requirements for Existing Buildings that Undergo Substantial Alterations

**Find incentives for your project.** Research the City's different incentives that might apply to your project.

- 1 City Light Energy Conservation
- 1 Office of Sustainability & Environment Building Incentives
- 1 Saving Water Partnership
- 1 Rainwise
- 1 Incentives for Historic Properties in Seattle

**Determine if you need a land use permit.** If your project is not a single-family building, you might need a Land Use / Master Use Permit. We need 4 to 8 months (or more) to review land use permits, which must be submitted before you submit your construction permit application.

**Attend a coaching session.** We offer 20 minutes of free coaching at the Applicant Services Center to answer drainage, land use, geotechnical or construction permit questions. If you need a longer coaching session, we offer one-hour sessions for a fee.

- 1 Request for Paid Coaching

## 2. Start Permit Application



## 3. Submit Plans



4. Get Permit

+

5. Schedule Inspection

+

6. Complete Project

+

## SEATTLE DEPARTMENT OF CONSTRUCTION & INSPECTIONS



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# Seattle Department of Construction & Inspections

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## PERMITS CODES & RULES TOOLS & RESOURCES

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## Demolition Permit - Building

### What Is It?

You need a demolition permit to remove a building. If you are in an environmentally critical area, you need a demolition permit no matter the size of the building.

You don't need a demolition permit if:

- You're removing an accessory structure with a roof area less than 120 square feet
- You're removing a portion of a building as part of an alteration

If you're building a new building on the same property, your demolition permit will be issued with your construction permit. You don't need to apply separately. If you're not replacing the building, or plan to get your building permit later, you must apply for a demolition permit and submit drawings.

Our land use code has special rules for demolition of housing. In some cases, we won't issue your demolition permit until we have issued your building permit. If you'd like to deconstruct your building instead of demolishing it, you may be able to get a deconstruction permit before the building permit is issued.

- [Tip 337, Demolition Permits](#)
- [Construction Stormwater Control and Soil Amendment Standard Plan](#)
- [Drainage Standard Control Plan](#)
- [Demolition Next Steps](#)

### What Do You Want To Do?

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### Check Status

### Still Need Help?

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#### Online

[Send Us a Land Use Question](#)[Send Us a Permitting Question](#)

- 1 Seattle Public Utilities CAM 1302, Building Material Salvage and Recycling
- 1 Tenant Relocation Assistance Ordinance

## How Much Does It Cost?

The fee for a demolition permit is the base fee per the current fee schedule, plus any additional review fees. You may need to pay additional hourly review fees if the disturbed ground area exceeds 750 square feet or deep cuts in the soil or shoring are needed. You pay 75 percent of your fees when you submit your plans. You pay the remaining fees when you pick up your permit.

### Fee Subtitle

## How Long Does It Take?

The total time it takes to get your permit depends on how complex your project is and how many corrections you need to make on your plans. We try to finish initial review of simple permit applications in 2-3 weeks (8 weeks for complex projects) from when you pay or intake fees. You will need to schedule an intake appointment after your screening has been approved. (See next available appointment times.)

If your plans require corrections, we recommend planning for 4 weeks per correction cycle (2 weeks for you to respond to corrections and 2 weeks for us to review the changes). The average project involves 2 correction cycles. Our final review usually takes one week.

If you have a small demolition project or are demolishing the interior only, you may be able to get a subject-to-field-inspection permit, which is issued on the same day that you apply.

### Tip 316, Subject-to-Field-Inspection Permits

## Steps to Get Your Permit

Expand all

1. Research

+

2. Start Permit Application

+

**3. Submit Plans**

+

**4. Get Permit**

+

**5. Schedule Inspection**

+

**6. Complete Project**

+

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# PCBs in Municipal Products

REVISED



*Prepared by:*



City of Spokane  
Wastewater Management Department

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## **APPENDIX B: SUMMARY OF RESULTS**

# PCBs in Municipal Products

## INTRODUCTION

Polychlorinated biphenyls (PCBs) are a toxic manmade chemical found ubiquitously in the environment. Historically, PCBs were primarily used in coolants and lubricants in electrical equipment, such as transformers and capacitors. In the United States, PCBs were largely sold under the trade name Aroclor. Direct production of PCBs was halted in the US in the 1970's due to evidence of human toxicity and persistence in the environment. Since that time, however, PCBs have been incidentally produced in a multitude of manufacturing processes as an unintended byproduct of processes that use heat, chlorine, and carbon.

The Washington State 2008 303(d) list holds 113 Category 5 listings for PCBs, covering 59 waterbodies. Several segments of the Spokane River are included in this list. The City of Spokane has performed stormwater sampling in several of its outfalls that drain to the Spokane River. PCBs were detected in each sample, with a typical sample in the range of 7,000 picograms per liter (pg/L), or parts per quadrillion (ppq).

Once thought to be only a legacy contaminant, PCBs have been found in numerous commercially available products. These PCBs are not intentionally produced, but are rather unintended byproducts of the manufacturing process. Materials containing less than 50 parts per million (ppm) are not considered "PCB-contaminated" under the Toxics Substances Control Act (TSCA) (40 CFR 761.3). For comparison to water quality considerations, 50 ppm is equivalent to 50,000,000,000 ppq. The current Washington State human health surface water quality standard for PCBs is 170 ppq (derived from the National Toxics Rule, 40 CFR 131.36). The Spokane Tribe adopted a water quality standard of 1.3 ppq due to higher fish consumption rates used to derive the standard.

Many products can easily come into contact with rain water and contribute to PCB concentrations in stormwater runoff. Municipalities are concerned about the presence of PCBs in commonly used products such as road paint, asphalt sealers, pesticides, and de-icer, to name a few. However, limited data is available as to the concentration of PCBs in products used for road and facility maintenance.

Nearly 50 product samples were collected and analyzed for PCBs using EPA Method 1668C. This method is capable of detecting low concentrations of PCBs for all 209 congeners. The majority of samples were composed of roadway, pipe, and vehicle maintenance products. Because PCBs are also ubiquitously detected in sanitary wastewater samples, five personal care products were sampled as well.

# Appendix B

## SUMMARY OF RESULTS

**Table B-1**  
Summary of PCB Product Sampling Results

Product Type	Media	Product ID	Total PCB (ug/kg or ppb)	Field Replicate (ppb)	Lab Duplicate (ppb)	Brand
Yellow road paint	Liquid	001	0.732	2.686		Ennis standard #2 - Product # 983712
Yellow road paint	Liquid	002	64.880			Sherwin Williams Promar TM 5713
White road paint	Liquid	003	0.414	0.396		Ennis standard #2 - Product # 983711
White road paint	Liquid	004	0.281		0.220	Sherwin Williams Promar TM 5712
Hydrant Paint	Liquid/Spray	005	0.003		0.010	Rustoleum Pro HP Enamel - Aluminum
Utility Locate Paint	Liquid/Spray	006	21.527			Rustoleum Industrial Choice, Solvent-based - green
Class B Firefighting Foam	Liquid	007	0.029			Alcoseal 3-3 (AR-FFFP)
Deicer	Liquid	008	1.332	1.952		MgCl Freezegard
Deicer	Liquid	009	0.038			Enhanced salt brine with SB Boost
Vehicle wash soap	Liquid	010	0.003		0.068	SuperXL, Hotsy
Vehicle wash soap	Liquid	011	0.068			Simple Green
Pesticide/Herbicide	Liquid	012	<0.0001		<0.0001	2-4D: Nufarm Weedar 64
Pesticide/Herbicide	Liquid	013	6.890			Portfolio 4F, Wilbur-Ellis
Pesticide/Herbicide	Liquid	014	0.012			Roundup Pro Max, Monsanto
Pesticide/Herbicide	Liquid	015	0.316			Crosshair, Wilbur-Ellis
Motor oil	Liquid	016	0.856		0.826	SAE 15W-40 Firebird Heavy Duty EC (bulk), Connell Oil
Motor oil	Liquid	017	0.969			Valvoline Full Synthetic 5W-30
Used motor oil	Liquid	018	0.502	2.375		SAE 15W-40 Firebird Heavy Duty EC, Connell Oil
Diesel	Liquid	019	<0.019			#2 Diesel, dyed
Gasoline	Liquid	020	0.935		0.811	Regular unleaded
Dirt road dust suppressant	Liquid	021	0.091			Asphalt emulsions- EADA
Dirt road dust suppressant	Liquid	022	0.086			Lignosulfonate- Ligno Road Binder (natural polymer in wood)
Dirt road dust suppressant	Liquid	023	3.574			Dustguard Liquid MgCl (different concentration than Deicer)
Lubricant	Liquid	024	0.623			MP Gear Lube SAE 85W-140, Phillips 66 Company
Asphalt tack	Liquid	025	0.085			SSR1 asphalt tack
Crack sealer	Solid	026	7.975			Special Asphalt SA Premier (3405- midrange crack sealer)
Asphalt release agent	Liquid	027	0.558		0.443	Soy What, TechniChem Corp.
Hydroseed	Solid	028	2,509.088			Natures Own Hydroseeding Mulch, Hamilton Mfg Inc
PVC pipe	Solid	029	1.999			ASTM 3034 8", Diamond PVC
CIPP liner	Solid	030	1.110			Cast in place pipe liner, installed by SAK
Shortliner	Solid	031	17.780			Infrastructure Repair Systems Inc
Yellow road paint, dried	Solid	032	0.565			Ennis standard #2 - Product # 983712
White road paint, dried	Solid	033	0.379		0.335	Ennis standard #2 - Product # 983711

Product Type	Media	Product ID	Total PCB (ug/kg or ppb)	Field Replicate (ppb)	Lab Duplicate (ppb)	Brand
Thermoplastic tape road striping	Solid	034	10.776			Ennis-Flint Pre-Mark
Antifreeze	Liquid	035	0.018			Kool Green Extended Life (recycled)
Thermoplastic tape road striping	Solid	036	3.325			Ennis-Flint Pre-Mark

#### Personal Care Products

Product Type	Media	Product ID	Total PCB (ug/kg or ppb)	Field Replicate (ppb)	Lab Duplicate (ppb)	Brand
Hand soap	Liquid	101	0.037			Dial Antibacterial, pomegranate and tangerine
Laundry soap	Liquid	102	0.174			Tide original liquid
Dish soap	Liquid	103	0.083			Dawn Ultra antibacterial
Shampoo	Liquid	104	0.058			Suave naturals
Toothpaste	Liquid	105	0.032			Aquafresh Extreme Clean Whitening

#### Notes:

Total PCB values have been blank corrected: congeners < 3 times the associated blank value not included in total.

ug/kg = micrograms per kilogram

ppb = parts per billion

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Treatment (ST)	4	0.8%	308	26.0%	312	18.6%
Gravel (GR)	0	0.0%	6	0.5%	6	0.4%
Other (O)	< 0.1 c/l mi	< 0.1%	5	0.4%	5	0.3%
<b>TOTAL</b>	<b>490</b>	<b>100.0%</b>	<b>1,187</b>	<b>100.0%</b>	<b>1,677</b>	<b>100.0%</b>

By area, almost half of Seattle's streets are constructed of jointed **Portland cement concrete rigid pavement (PCC)**. Concrete pavements suffer minimal environmental degradation in Seattle's mild climate. They are long lived, particularly in lightly loaded non-arterial applications.

A little over fifteen percent of the street network is **asphalt flexible pavement (AC or AC/AC)**, which is built by placing lifts of hot mix asphalt on a crushed aggregate base. Locally and in modern times, this is probably the most common urban pavement construction.

Approximately twenty percent of streets are built of **composite pavement (AC/PCC)**, which is either jointed concrete, brick, or sheet top that has been topped with a layer of hot mix asphalt. They are referred to as composite pavements because of the combination of flexible (asphalt) and rigid (concrete or brick) materials. The asphalt surfacing improves ride, but it adds minimal structure and needs to be renewed every 10 to 20 years to address reflective cracking.

Another fifteen percent or so of the system is **chip seal (BST or bituminous surface treatment)**. The chip seal streets are almost all non-arterial. Most are north of 85th Street and at the southern border of the City, areas annexed from King County post-1940. They were converted in the 1960's and 1970's from gravel roads to a low-cost surface of flexible cold mix asphalt with an oil and gravel weathering course – the chip seal. Chip seal streets need to be patched and resealed on a regular basis renew the surface and seal the pavement structure against water intrusion. Chip seal streets typically lack sidewalks and formal drainage systems.

Finally, there is a small inventory, less than one percent of the system, surfaced with **gravel (GR)** or a **historic/decorative surface such as setts or pavers (O)**.

The University of Washington's Pavement Interactive website has information on the **history and evolution of pavement construction**.

**Pavement Condition Rating**

SDOT uses the Metropolitan Transportation Commission (MTC) pavement management system and rating methodology to track the condition of Seattle's streets. The MTC rating method is based on the Pavement Condition Index (PCI) rating procedure developed by the US Army Corps of Engineers in the 1970's and described in ASTM standard D6433. It provides engineers and decision-makers with a rational, objective measure of street condition. The procedure was designed to be repeatable and well-correlated with the judgment of experienced pavement engineers.

The PCI method measures the occurrence of several pavement distress types and assigns a PCI score based upon the density (area affected) and severity of the observed distress. Structural, environmental and other types of pavement distresses are captured in this process. The PCI scale ranges between 100 and 0. A PCI of 100 represents a pavement completely free of distress; a PCI of 0 corresponds to a pavement that has failed completely and can no longer be driven safely at the designed speed. Pavement Condition Ratings (PCRs) are associated with ranges of PCI. Table 1 shows the range of PCI values to which each rating corresponds based on the ASTM D6433 scale.

**Pavement Condition Ratings and Pavement Condition Index Ranges**

Pavement Condition Rating (PCR)	Pavement Condition Index (PCI)
Good	86-100
Satisfactory	71-85
Fair	56-70
Poor	41-55

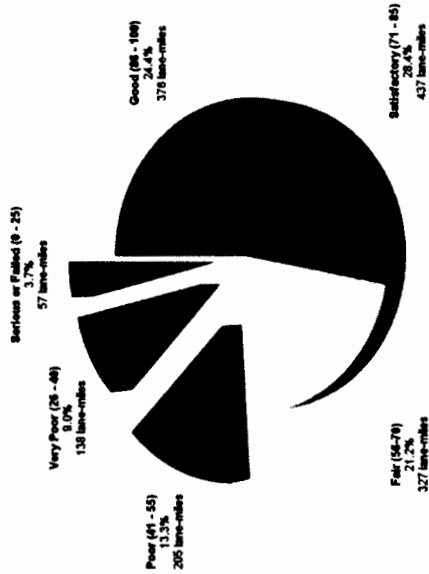
Very Poor	26-40
Serious / Failed	0-25

Streets in "Fair" condition or above generally require only routine or preventive maintenance. When pavements reach a condition level of "Poor", they show notable deterioration and may be candidates for major maintenance or preservation work such as an asphalt overlay, select concrete panel replacement, or diamond grinding. Streets in "Very Poor" condition or below have typically deteriorated to the point where potholes and other structural distress are widespread, and the pavement needs to be completely reconstructed.

Arterial Pavement Condition

Seattle's arterial streets are in good condition overall, but there is a large and persistent backlog of deferred maintenance that has accumulated over decades of underinvestment in pavement renewal. The condition of Seattle's arterials streets as measured in 2010 is shown in the chart below.

Seattle Arterial Pavement Condition in 2010, by PCI and PCR

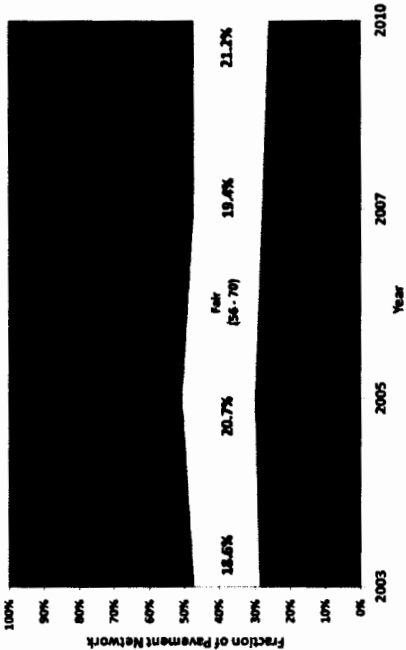


Click on image to view larger

A large fraction (74%) of Seattle's arterial pavement system is in serviceable condition ("Fair" or better) and requires only routine or preventive maintenance at this time. However, approximately a quarter of the network (26%, "Poor" or below) shows a current pavement rehabilitation need, either major maintenance or reconstruction. Delaying repairs on streets where pavement condition indicates a need creates deferred maintenance. Deferred maintenance is work that is postponed to a future budget cycle, or until funds are available. As maintenance is deferred, the opportunity to apply global, life extending pavement treatments is forfeited and the ultimate cost of rehabilitation multiplies by a factor of four to seven. Seattle has a significant backlog of deferred arterial street maintenance, approximately 400 lane-miles. In 2010 dollars, it is estimated that it would cost \$578 million to address all of those deferred street rehabilitation needs.

The increase in funding for paving that came with the 2007 Bridging the Gap transportation levy has allowed SDOT to begin rehabilitate some of Seattle's busiest streets. Conditions on principal arterials, the city's busiest, have improved measurably, from an average PCI of 70 in 2007 to 74 in 2010. However, arterial street rehabilitation efforts, overall, have been closely paced by systematic deterioration. The figure below shows Seattle's arterial pavement condition as measured in 2003, 2005, 2007 and 2010.

Seattle Arterial Pavement Condition 2003 to 2010, by PCI and PCR



Click on image to view larger

Regular pavement condition assessments allow SDOT select the type and timing of maintenance to maximize its effectiveness. When selecting streets each year to be paved, the engineers consider:

- street condition
- cost and cost effectiveness of treatment (weighing preservation opportunities against full street reconstruction)
- traffic volume (including transit, freight, pedestrian and bicycle)
- grants and other leveraged funding opportunities
- utility coordination and grouping locations for efficiency
- citizen complaints and claims
- equity and geographic balance across the city

Facing a large backlog of deferred maintenance, SDOT must make difficult choices between streets with similar paving needs. Emphasis is placed on the busiest arterial streets and timing maintenance so that, over the long term, street repair dollars reach the greatest number of users. All paving projects include installation curb ramps at intersections, bringing street crossings into compliance with current American Disabilities Act (ADA) standards. Projects also incorporate funded Complete Streets elements and drainage infrastructure upgrades to comply with the City's Stormwater Code.

**Non-arterial Pavement Condition**

With such a large backlog of needs on the busiest arterial streets, Seattle has little funding left over for pavement condition rating or paving on the 2,412 lane-mile non-arterial street network. SDOT has no funded program to assess non-arterial street condition. The base level of service SDOT is funded to provide on non-arterials is spot repair for safety. Pothole Ranger crews make pothole patch type repairs when they are called in by citizens. As of 2012, SDOT has two small spot non-arterial paving programs that allow paving crews rehabilitate about 0.3 lane-miles per year. That amount of paving is negligible in scale to the system, but it does allow the Department to address a few critical non-arterial locations used by buses and industry, or around hospitals and other locations with heavy pedestrian traffic crossing the street.

**Pavement Condition Report (2003)**

In 2003, SDOT reorganized its pavement management section and issued **a report on the condition of Seattle's streets**. The information presented on this webpage shows how SDOT's pavement management effort has evolved since that original report.

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### General

Traffic services are maintenance functions necessary for the safe and efficient movement of traffic. These include maintaining highway signs, delineators, pavement markings, traffic islands, curbs, impact attenuators, barriers, guardrail, traffic signals, and highway illumination. Each serves a definite function in the control and guidance of traffic. Functions that utilize electricity, including traffic signals, ramp meters, data accumulator systems, changeable message sign systems, and highway illumination systems are discussed in Chapter 10.

The application, installation, and maintenance of all traffic service functions must conform to the accepted practice and standards set forth in the FHWA *Manual on Uniform Traffic Control Devices* (MUTCD), the WSDOT *Design Manual* M 22-01, and the WSDOT *Standard Plans* M 21-01.

### Reconstruction Principles

The following are samples of items that are subject to reconstruction to meet current design standards. The list is not all-inclusive, but serves to illustrate the updating that can be accomplished.

- Breakaway bases on all sign supports and luminaire poles.
- Guardrail terminals and transitions.
- Guardrail post spacing.

Use the “K Job Estimating Application” in the Highway Activity Tracking System (HATS) to estimate the cost of repairing damaged highway hardware in kind. When upgrading damaged hardware to current standards, attach a sheet to the Repair Cost Estimate to document why the original installation does not conform. This sheet will also show estimated additional materials, labor, and costs to bring the installation up to present design standards. Where possible, take photographs before and after repair and updating, and include in the job file.

Repair and updating is accomplished by state forces or by contract. On state force work, include the work order number to be charged against on employee time sheets. A standby contract will be used to provide early contractor mobilization to assure fast repair of critical highway hardware damage.

In a region level contract, the Regional Administrator awards a contract in accordance with the delegated authority for contracts. Guidance for administering region level contracts can be found in WSDOT *Advertisement and Award Manual* M 27-02. The amount of State Force Work participation in contracts is governed by the monetary limits shown in Revised Code of Washington 47.28.030.

Descriptions and dimensions of markings are shown in the *Standard Plans*, Section M, Pavement Markings. Application requirements for various markings are shown on the standard plans, noted by type as follows:

Marking Application	Standard Plan
Center Line	M-20.10
Center Line supplemented with RPMs	M-20.30
Lane Line	M-20.10
Lane Line substitution with RPMs	M-20.50
Left Turn Channelization	M-3.10, M-3.20, M-3.30, and M-3.50
Left Turn Channelization substitution with RPMs	M-20.50
Two Way Left Turn Center Line	M-3.40
Gore Area Marking	M-2.20
Single Lane On and Off Ramps	M-1.20
Drop Lane Line (Wide Broken Lane Line)	M-20.10
Two Lane On and Off Ramps	M-1.40
Collector Roads	M-1.60
Traffic Arrows	M-24.20 and M-24.40
Bicycle Lane Symbol	M-9.50
Crosswalk line	M-15.10
HOV Lane Symbol	M-7.50
Access Parking Space Symbol	M-24.60
Aerial Surveillance Marking	M-24.60
Railroad Crossing Symbol	M-11.10
Roundabout Traffic Arrows	M-24.50

RPMs installed as positioning guides along with longitudinal markings are shown on Standard Plans M-20.30 and M-20.40. RPMs installed as substitute applications for longitudinal markings are shown on Standard Plan M-20.50.

## Materials

Pavement markings are renewed with a material that is compatible with the original application material. Painted markings are renewed at a thickness of 0.015 inches or 15 mils. The glass beads are applied at a minimum rate of seven pounds per gallon of paint. Thermoplastic markings are renewed at a thickness of 45 mils for long line markings and 90 mils for transverse markings. Methylmethacrylate markings are renewed at a thickness of 45 mils for long line markings and 90 mils for transverse markings. RPMs are replaced in kind.



## Application

Apply all pavement marking materials in accordance with the material manufacturer's recommendation. Apply all materials when the pavement is clean and dry. Moisture in the pavement is the major cause of most marking failures. Apply paint and thermoplastic materials when the pavement temperature is 50 degrees and rising. Methylmethacrylate material can be applied when the pavement temperature is 40 degrees and rising, provided the pavement is dry.

Paint and methylmethacrylate material is purchased by the liquid gallon. Thermoplastic material is purchased by the pound, then heated and applied as liquid. Material requirements for pavement marking materials for a continuous four inch line are as follows:

Millage	Gallons/Mile (Liquid)	Pounds/Mile (Dry)
15	16.4	—
45	49.2	1100
90	98.3	2200

The Striping Supervisor is advised to contact the area Maintenance Supervisor in advance of any long line marking applications to coordinate maintenance activities and arrange for sweeping of the roadways.

## Surface Moisture Test

The presence of moisture on the pavement should be checked whenever conditions are questionable. Presence of pavement surface moisture can be determined as follows:

- **Asphalt or Concrete Surfaces** – Place a 12 × 12 inch square piece of plastic wrap on the pavement surface using duct tape to affix the edges. Let stand approximately 15 minutes and check for moisture bubbles on the inside surface of the plastic. If moisture bubbles on the plastic are larger than a pencil eraser, then the pavement contains too much excess water. Notify the contractor of this condition and postpone all marking operation until the pavement is dry enough to prevent the large moisture bubbles from forming on the plastic.
- **Thermoplastic Applications on Asphalt Only** – Using roofing felt paper, place a 12 × 12 inch square of felt on the asphalt and install the thermoplastic material directly onto the felt paper. Let it cool for approximately 10 seconds, then lift the paper to check for moisture on the back side. If moisture bubbles larger than a pencil eraser are present on the back side of the roofing paper, then the pavement contains too much excess water. Notify the contractor of this condition and postpone all marking operations until the pavement is dry enough to prevent the large moisture bubbles from forming on the back of the felt paper.

## Marking Renewal or Replacement Frequency

Pavement markings are renewed when they no longer provide guidance during daytime and nighttime conditions. Markings that may appear adequate in the daytime may have no reflectivity at night. Typically markings fail by loss of reflectivity long before they fail by daytime appearance.

On the majority of our highways, the longitudinal paint stripes will have to be restriped every year to maintain adequate line presence and retroreflectivity.

On low volume highways with minimal snow plowing activity, paint striping may last more than one year. A stripe evaluation should be done that evaluates both the amount of paint remaining on the roadway surface (durability) and the retroreflectivity of the stripe. The study should determine if the stripe will remain adequate until the next striping maintenance cycle.

Renew applications on the following schedule:

Marking Type	Frequency
Long line painted markings	At least once a year or less determined by evaluation
Heavy wear long line painted markings	At least once a year or less determined by evaluation
Thermoplastic transverse applications	At least once every two years
Methylmethacrylate transverse applications	Every five years
Reflective RPMs (except yellow)	By group every two years
Reflective yellow RPMs supplementing the yellow edge lines on divided highways	Every four years
Non reflective RPMs	Replaced as needed when the associated reflective RPMs are replaced

## Removal of Markings

Removed pavement markings can sometimes reappear and confuse motorists. All removed pavement markings must be unidentifiable as pavement markings under day or night, wet or dry conditions.

Do not over-paint markings with black paint or bituminous solutions. This treatment has proven unsatisfactory because the original lines eventually reappear as the overlying material wears away. In addition, lines covered in this manner may still be visible under wet conditions or low angle illumination (headlights) conditions.

## Guideposts

Guideposts are classified as guide markings rather than required warning devices. Guidepost type designations and mounting details are noted on Standard Plan M-40.10. Guidepost placement guidelines are noted in Standard Plan M-40.20 through M-40.60.

Studies have shown that wildlife warning reflector systems are ineffective at reducing the accident potential for motor vehicle/wildlife collisions. WSDOT policy is to no longer design, place, or maintain wildlife reflectors.

Barrier delineation is used in areas with guardrail or concrete barrier where guideposts are required by other roadway conditions. The spacing of barrier delineators for these applications is the same as the spacing noted for guideposts. Promptly replace damaged or missing guideposts and barrier delineators.

## **Traffic Barriers and Impact Attenuators**

Traffic barriers, such as beam guardrail, cable barrier, and concrete barrier are used to protect vehicles from hazards within the Design Clear Zone (as defined in Chapter 2) that cannot be removed or otherwise relocated. Hazards may be a single point, such as a bridge pier, or an extensive area, such as steep embankments. Elements of traffic barriers include the standard run of barrier, terminals or anchors for the treatment of the ends, and transitions for connecting to stiffer barriers.

## **Maintenance**

Barriers must be properly maintained to ensure that they will perform as intended when struck by errant vehicles. Keep the area under and around barriers clean and free of debris. Do not allow objects that could become projectiles to be placed on top of barriers. The area under and around barriers may or may not need to be kept free of vegetation. This is a site-specific decision based on types of vegetation and potential problems that may result from the presence of such vegetation.

## **Inspection – General**

Inspect barriers periodically, either by visual drive-by or by physical inspections.

Inspect for:

- The overall condition of the barrier (including posts).
- Proper interconnection of units.
- Proper installation of anchor cables and connecting pins.
- Tightness of blocks and fasteners.
- Proper overlapping of beam guardrail.
- Secure attachment of beam guardrail.

## **Inspection and Preventive Maintenance – Cable Barrier**

All cable barrier should be inspected and re-tensioned annually, as recommended by cable barrier system manufacturers. The inspection shall consist of a maintenance technician walking along the run of barrier, visually observing barrier components to determine any deficiencies and the overall condition of the barrier. The inspection should also include measuring the tension and re-setting the tension to the recommended level. All inspection and preventive maintenance work shall be documented in HATS.

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DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# **Lead and Other Metals in Traffic Paint in Washington State**

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Final Report

May 2015  
Publication 15-04-018

## Publication and Contact Information

This report is available on the Department of Ecology's website at  
<https://fortress.wa.gov/ecy/publications/SummaryPages/1504018.html>

For more information contact:

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## 1.0 Introduction

In 2011 and 2012 as part of a wider effort to assess and reduce the use of lead and other metals, the Washington Department of Ecology (Ecology) received conflicting statements and information on whether leaded traffic paint is still in use. Some paint industry representatives and facilities stated that leaded traffic paint was no longer in use. The Washington Department of Transportation (WSDOT) contract specification for solvent-based traffic paint has required “no lead” for a number of years. However, contractors offered leaded paint to Ecology and at least one other public entity in western Washington when striping paved surfaces. In these two situations, metals information was based on the Material Data Safety Sheets (MSDSs) provided by the contractors.

For the purposes of sampling for this report, leaded paint is defined as greater than 600 parts per million (ppm) lead in the dried paint film. WSDOT specification for low volatile organic compound (VOC) solvent-based traffic paint limits lead to less than 600 ppm and chromium to less than 50 ppm (WSDOT, 2010). However, there is no legal requirement in the state to use this specification or traffic paint meeting these criteria. Other entities are free to use the specification or not.

In 2013, Ecology conducted random field tests in Thurston County to determine if applied traffic and zonal striping paint was above or below the 600 ppm level. Sampling focused primarily on yellow paint due to the historic use of lead chromate in yellow paint for bright color. In addition to yellow paint, staff sampled white, red, and blue markings where present. Staff later sampled additional locations in King County, City of Yakima, and City of Spokane for a broader geographic sampling.

An x-ray fluorescence (XRF) unit was used to conduct 79 analyses, mainly in parking lots. Of those, 59 exceeded 600 ppm lead and 41 exceeded 10,000 ppm lead. The highest result was 42,000 ppm lead. While some of the samples were obviously older samples or had multiple layers of paint, Ecology also measured parking complexes that were newly paved and striped for the first time in that year. Those samples contained yellow paint with 24,000 to 29,000 ppm of lead. At the lower end of the spectrum, five parking lot samples showed concentrations of lead less than the limit of detection (LOD), while another five parking lot samples ranged between the LOD and 600 ppm. Four paint striping sites along streets measured less than the 600 ppm threshold.

Limited field tests confirmed that traffic paint containing lead greater than 600 ppm was used in some Washington locations as recently as 2013. However, the tests did not provide sufficient data to estimate a total amount of leaded traffic paint used in any of the cities or counties tested.

To gain additional information, Ecology contacted Ennis-Flint, the current holder of the state solvent-based traffic paint contract. The company is a major provider of traffic and other paints in

the United States. The company has manufactured both leaded and lead-free traffic paint. Ennis stated they have slowly reduced lead in their products for 20 years, beginning with high-volume products where the cost of reformulating would provide the best cost benefit. Solvent-based traffic paints, which represent a smaller part of their products, were converted to completely lead-free products later. The company decided to eliminate lead use in all of their 14 U.S. manufacturing facilities as of January 1, 2014. (Personal communication, 2014).

Ecology wanted to conduct a more in-depth evaluation of traffic paints that are for sale in the state. Staff wanted to compare XRF analyses of paint samples to laboratory analyses and do additional field testing. Because the XRF unit can provide concentration data on multiple metals simultaneously, Ecology staff decided to assess not only lead and chromium, but also cadmium, copper, and zinc. Ecology's concern about these five metals focuses on their toxicity to human health and the environment. Metals in traffic and zonal paint wear and chip off and they can become airborne or waterborne.

For lead and chromium, the focus is predominantly on human exposure. Exposures to lead have been linked to learning disabilities and behavioral problems in young children and elevated blood pressure, and nervous system damage in adults (Ecology and Health, 2009). Chromium (especially hexavalent chromium) can irritate the respiratory tract, resulting in airway irritation, airway obstruction, and lung, nasal, or sinus cancer. During dry periods, metal constituents in traffic paint can wear and sorb onto dust particles, exposing humans through inhalation. These two metals are also toxic in aquatic systems.

Stormwater can carry paint and its constituents into fresh and marine waters. Ecology determined that surface water runoff was the greatest contributor of lead, copper, and zinc to the waters of the Puget Sound basin (Ecology, 2011). Copper and zinc are toxic to fish and aquatic plants. Even at very low concentrations, copper can disrupt the Coho salmon's olfactory senses. Zinc fouls fish gills, ultimately causing suffocation. Cadmium is toxic to humans, fish, and other aquatic species at very low concentrations.

## **2.0 Objectives and Study Design**

### **2.1 Objectives**

Ecology designed this study to achieve four objectives. The study:

1. Determined whether the traffic paint samples of products assessed by Ecology have lead or chromium concentrations above 600 and 50 ppm dry weight, respectively (Table 1). Paints sampled included those sold and applied in the latter half of 2014 or obtained from



manufacturers or vendors in 2014 and 2015. Paint samples included only yellow solvent-based traffic paint, except for one sample of yellow non-solvent-based paint (CC-01).

2. Compared the analytical laboratory results with the results of XRF measurements of paint and MSDS information for lead and chromium for all paint samples obtained.
3. Determined the thickness of lead-free paint applied over leaded paint necessary to attenuate (decrease) the lead concentrations measured by the XRF unit.
4. Obtained XRF analysis of paint applied in parking lots in 2014 to compare the results to those from the laboratory analyses, the XRF results, and the XRF results from a field study of paint applied in parking lots and with the results of the 2012-13 field study.

**Table 1. Target Chemicals, Analytical Methods, and Reporting Limits**

Analytes	Concentration of interest (ppm dry)	Analytical Method	Reporting Limit* (mg/Kg <sup>a</sup> )
Lead	600	EPA 200.8	1.5
Chromium	50	EPA 200.8	1.3
Cadmium	Method Detection Limit	EPA 200.8	1.0
Copper	Method Detection Limit	EPA 200.8	2.5
Zinc	Method Detection Limit	EPA 200.8	5.0

<sup>a</sup> mg/Kg = milligram per kilogram, equivalent to ppm

## 2.2 Study Design

Addendum #2 of the Quality Assurance Project Plan (QAPP) describes the details of sampling and analysis, while these subsections provide a brief overview.

Ecology obtained traffic paint samples from paint manufacturers and local vendors in Washington State and tested both solvent-based and non-solvent-based yellow paints. Paint manufacturers included Ennis-Flint, Sherwin-Williams, Kelly Moore, Grainger- RAE, Rhodda Paint, Miller Paint, and Columbia, as well as aerosol sprays manufactured by Rustoleum, Fastenal-Rustoleum, Ace Hardware, Do-It-Best, and Krylon used for striping by do-it-your-selves. Most of the paint samples were manufactured in 2014. Ecology staff submitted the paint samples to its Manchester Environmental Laboratory for analysis of metals.

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Scott Kubly, Director

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#### Overview

#### What is crack sealing?

Crack sealing is a commonly used preventive maintenance activity for pavement. Crack sealing prevents infiltration of water and other materials. This extends the life of the pavement.

When water seeps through cracks in the pavement it can freeze, expand and damage the pavement.

Crack sealing helps reduce structural deterioration, minimize pothole formation, and can prevent pavement distresses. It helps maintain streets in good condition, postponing the day we need to repave or rebuild them.

#### Background

Crack sealing typically happens in the summer to mid-September when conditions are relatively dry and there is little chance of rain. The crack seal process for a particular block is typically done within a day.

The roads that are selected for this preventive maintenance are rated as relatively in good condition (with surface cracks but no structural deterioration), based on SDOT's latest pavement condition assessment of Seattle's arterial streets, using the pavement condition index (PCI) rating for the streets.

#### 2016 Project

The 2016 program will begin in May and continue through August/September.

#### Locations of 2016 Crack Seal Program

- **S Dearborn St** between 5th Av S and Rainier Ave S
- **12th Ave S** between E Yesler Way and Jose Rizal Bridge (south of S Weller St)
- **Airport Way S** between S Royal Brougham Way and S Edmunds St
- **50th Ave S** between S Genesee St and S Hudson St (southbound lane only)



**Beacon Ave S** between S Holgate St (top of ramp) and 11th Ave S

- **35th Ave SW** between Fauntleroy Way SW and SW Manning St
- **SW Manning St** between 35th Ave SW and 37th Ave SW
- **Beach Dr SW** between SW Genesee St and SW Canada Dr
- **NE 45th St** between 7th Ave NE and 20th Ave NE
- **NE 45th St** between Montlake Blvd NE and 43rd Ave NE
- **NE 45th Pl** between Union Bay Pl NE and 47th Ave NE
- **35th Ave NE** between NE 47th St and NE 55th St
- **NE Northgate Way** between 1st Ave NE and 15th Ave NE

Typical cracks filled by crack sealing

#### Map of 2016 Crack Seal Locations

#### Outreach Flyer for 2016 Program

#### What to Expect during Crack Seal Projects

The impacts of crack sealing are minor compared to a repaving project, but there are some impacts.

**PARKING RESTRICTIONS:** The work area covers from curb to curb, so parking will be restricted on both sides of the street during the day(s) of the crack sealing from 7 a.m. – 5 p.m. "No Parking" signs will be installed 72 hours prior to start of work. The parking restrictions are typically removed as soon as SDOT crews complete the maintenance work.

**SCHEDULE:** Weather permitting, SDOT crews plan to start the crack sealing operation in early May. "No Parking" signs will be installed at least 72 hours prior to the start of work, which provides a good indication of the timing of the upcoming work. If you need more information regarding the schedule, please contact us.

**LANE CLOSURES:** There will be **no** full street closure during the operation. SDOT will keep one lane open in each direction. Lane closures may last approximately 3 to 4 hours. Traffic flaggers will be present during maintenance work. Sidewalks will remain open at all times.

**ACCESS TO ALLEYS AND DRIVEWAYS:** Access to driveways or alleys may be disrupted for a few minutes during the day of the work, but SDOT crews will work to minimize any delays and will provide assistance as needed.

#### Contact Us

If you have any questions or comments on the crack seal program you may

- Call Susan Almachar, Program Manager, at **206-684-5303** or **206-396-3556**  
E-mail [susan.almachar@seattle.gov](mailto:susan.almachar@seattle.gov).
- Write to:  
Crack Seal Program  
SDOT/Street Maintenance  
PO Box 34996  
Seattle, WA 98124-4996

For Street Maintenance 24-hour emergencies, please call: **206-386-1218**.

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### SDOT's Microsurfacing Program

Last updated: October 18, 2016

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#### Overview

##### What is Microsurfacing?

Microsurfacing is a protective seal coat which extends the life of pavement. It is a thin, tough layer of asphalt emulsion blended with finely crushed stone for traction.

This is a cost-effective method to renew the road surface and seal minor cracks and other irregularities. This preventive maintenance process protects the pavement from moisture penetration and oxidation.

Similar to painting a house, microsurfacing creates a protective layer which preserves the underlying structure and prevents the need for more expensive repairs in the future.

Microsurfacing is seeing growing use by transportation agencies, including SDOT.

##### An Alternative to Chip Sealing

In the past, SDOT's primary method of preventive maintenance has been **chip sealing**. While chip sealing is an effective preventive maintenance measure, it leaves the roads very rough and there is an extended period of loose rock on the street. Microsurfacing and chip sealing are both seal coats that extend the life of the pavement for about the same amount of time (5 to 10 years).

However, microsurfacing has two key advantages over chip sealing:

- No loose rock chips are involved, so there is no need to sweep loose rocks weeks after the project is complete.
- The final product provides a finished surface which is black in color and looks similar to a conventional asphalt surface.

Chip sealing has the advantage that you can drive on the street immediately, but with microsurfacing you must wait 2 hours or more for the surface to cure before driving or walking on it.

#### Background

##### How does SDOT select the streets for treatment?

In the 1950's and 1960's, the City of Seattle annexed several parts of King County. Most of these streets had a dirt or gravel surface. The City paved these streets with a minimal amount of asphalt and began a regular preventive maintenance cycle, typically chip sealing the streets on a 10-year cycle.



Because these streets are mostly low volume non-arterial streets and have received preventive maintenance in the past, they continue to be the best candidates to receive preventive maintenance.

All the blocks resurfaced in a microsurfacing project are selected based on the age of the current pavement and an on-site inspection by SDOT staff.

#### Our street looks fine. Why resurface it?

Flexible pavements (typically asphalt) need periodic resealing to protect them from the deteriorating effects of water (rain) and sun. If left untreated, the surface becomes brittle and may crack and ravel. Periodic resealing prevents more extensive and costly repairs. Regular preventive maintenance is the most cost-effective way to maintain streets.

#### Preparing the street: fixing potholes, cracks, etc.

It is essential that structural damage is repaired prior to the microsurfacing process. SDOT crews will begin to patch deteriorated areas of the selected roads well in advance of the microsurfacing operation.

In addition, low hanging branches and overgrowth may need to be trimmed to allow for the microsurfacing equipment to navigate the roads.



On the day of microsurfacing, crews will sweep the street before applying the microsurfacing material.

#### The Microsurfacing Process

Microsurfacing is a process similar to a **slurry seal**. A mixture of asphalt emulsion and aggregate (crushed stone, gravel and sand) is applied to the road. However, unlike a slurry seal, microsurfacing uses emulsion that is modified with polymers and other ingredients so it cures more quickly.

As shown in this **short video**, as the microsurfacing equipment moves along the street, the mixture is fed into a spreader box. The material is spread across the full width of a traffic lane and then smoothed by a squeegee. The equipment also feathers the edges for a smooth transition. All this happens in one step. Here's a very short video showing **microsurfacing on a Seattle street** in 2013.

After the microsurfacing seal coat cures (hardens), the street can be reopened and used normally. *However, there may be parking restrictions and road closures for the entire day the work is scheduled.* In some locations, new curb ramps are installed as part of a microsurfacing project to comply with Americans with Disabilities Act (ADA) standards and improve safety and accessibility for all sidewalk users. *For more information on what to expect during microsurfacing, please click on any of the neighborhoods above and view the advance notification flier.*

#### Factoids

- Microsurfacing is a cost-efficient surface treatment particularly where traffic volumes are low and the street is not regularly used by heavy trucks or buses.
- City crews will complete all of the preparatory work for the microsurfacing project. A contractor will then come in to complete the actual microsurfacing.

#### Past Projects

- **2013:**
  - SDOT conducted a pilot microsurfacing project in the Wedgwood neighborhood. Twelve lane miles were microsurfaced.
- **2014:**
  - Based on the results of the 2013 pilot project, SDOT microsurfaced selected blocks in **Arbor Heights**, totaling 27 lane miles.
- **2015:** SDOT microsurfaced selected blocks in 4 neighborhoods, totaling 43 lane miles:
  - **North Rainier Valley / North Beacon Hill**
  - **SODO/Georgetown**



- **North Maple Leaf**
- **Arbor Heights**
- **2016:** SDOT microsurfaced selected blocks in 10 neighborhoods, totaling 63 lane miles:
  - **Madison Valley/Madrona/Leschi**
  - **Matthews Beach**
  - **Meadowbrook**
  - **Montlake**
  - **North Green Lake**
  - **South Beacon Hill/New Holly**
  - **South Wallingford and Southeast Ballard**

**Contact Us**

If you have questions or comments about the microsurfacing program, please contact David Allen, Pavement Engineering and Management at 206-733-9302 or [david.allen@seattle.gov](mailto:david.allen@seattle.gov)

For Street Maintenance 24-hour emergencies, please call: **206-386-1218**.

????????????????**206-733-9302?**

Si usted necesita esta información traducida al español por favor llame al **206-733-9302**.

Kung kailangan ninyong isalin sa Tagalog ang impormasyong ito, paki-tawag lang **206-733-9302**.

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## SDOT Blog

Department of Transportation

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# Surviving Seattle Snow with Plows, Plans, and a lot of Salt

December 9, 2016 by SDOT Blog

Snow struck Seattle, and we're happy to say our response was a success at keeping the city moving!

As flakes turned to flurries on Thursday night, our snow response teams at Charles Street Service Station were ready with plows, deicers, and a lot (lot) of salt. We even got a visit from Mayor Ed Murray!



We were happy for the chance to talk with the Mayor, and accompanying news crews, about our plan to keep the city moving even in inclement weather. Through our focus on arterial (main) roads along our Gold and Green routes, and the hard work of our crews through the night, the Friday AM commute was

minimally interrupted for cars and buses.

In addition to which routes we'd plow, we discussed the importance of road salt (magnesium chloride) as an anti-icing agent to prevent ice freezing to pavement. This salt is better for mobility and the environment than traditionally used sand, although neither would be good on popcorn.



Most modern cars have an undercoating which protects against any corrosion from the road salt, but we do recommend drivers wash vehicles to prevent build-up. Our street sweeping team will also go out after the weather warms to clean up any residual salt. Our crews use the latest innovations to ensure we can make the roads safe in a sustainable way.



We've learned a lot about preparing for winter weather, and we may get the chance to put it into practice again soon, as more snow could be on the way. Stay safe out there, and check our **Winter Weather Map** for the latest route information!

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Filed Under: **Safety**, **SDOT**, **Winter Weather**

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## Washington Waters

### WASHINGTON WATERS OURS TO PROTECT

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What you can do...

### Car maintenance

**Don't leave a sheen.  
Maintain your car.**

Clean water is important to all of us. It's up to all of us to make it happen. In recent years sources of water pollution like industrial wastes from factories have been greatly reduced. Now, most water pollution comes from things like cars leaking oil, fertilizers from farms and gardens, and failing septic tanks.

All these sources add up to a big pollution problem. But each of us can do small things to help clean up our water too. And that adds up to a pollution solution!

#### Why do we need clean water?

Having clean water is of primary importance for our health and economy. Clean water provides recreation, commercial opportunities, fish habitat, drinking water, and adds beauty to our landscape.

All of us benefit from clean water and all of us have a role in getting and keeping our lakes, rivers, marine and ground waters clean. What's the problem with motor oil?

Oil does not dissolve in water. It lasts a long time and sticks to everything from beach sand to bird feathers. Oil and other petroleum products are toxic to people, wildlife and plants. One pint of oil can make a slick larger than a football field. Oil that leaks from our cars onto roads and driveways is washed into storm drains, and then usually flows directly to a lake or stream.

Used motor oil is the largest single source of oil pollution in our lakes, streams and rivers. Americans spill 180 million gallons of used oil each year into our waters.

Drips don't have to be a problem.

#### What will you do to help?

- Change your motor oil and help keep our waters clean.
- Stop drips. Check for oil leaks regularly and fix them promptly. Keep your car tuned to reduce oil use.
- Use ground cloths or drip pans beneath your vehicle if you have leaks or are doing engine work. Clean up spills immediately. Collect all used oil in containers with tight fitting lids. Do not mix different engine fluids.
- Never dispose of oil or other engine fluids down the storm drain, on the ground or into a ditch.
- Recycle used motor oil. Many auto supply stores and gas stations will accept used oil.
- Buy recycled (re-refined) motor oil to use in your car. To find out more about where you can take used oil for recycling, call the Department of Ecology's 1-800-RECYCLE line or the number in your community listed below.

**When your car's leaking oil on the street, remember  
it's not just leaking oil on the street.**

**WASHINGTON**  
*waters*  
**OURS TO PROTECT**



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## SPOKANE RIVER REGIONAL TOXICS TASK FORCE

# HYDROSEED PILOT PROJECT SUMMARY REPORT

July 31, 2015

*SRRTTF Hydroseed Project Team:*

Doug Krapas (Lead), Inland Empire Paper Company

John Beacham, City of Post Falls

Jeffrey Bell, Gallatin Public Affairs

Adriane P. Borgias, WA Department of Ecology

Jeff Donovan, City of Spokane

Brandon Iwasaki, WA Department of Transportation

Greg Lahti, WA Department of Transportation

Lynn Schmidt, City of Spokane

Eric Williams, Gallatin Public Affairs

## Definitions

**Aroclors** - trade name of the commercial PCB mixtures manufactured by the Monsanto Chemical Company and sold in the United States. An Aroclor PCB mixture might consist of over 100 different individual PCB congeners. There were nine common PCB Aroclor mixtures (1221, 1232, 1242, 1016, 1248, 1254, 1260, 1262, and 1268), and each of them has a distinctive gas chromatographic pattern.

**Congeners** - any single, unique well-defined chemical compound in the PCB category. Individual congeners are identified by the number and position of the chlorine atoms around the biphenyl rings. There are a total of 209 different PCB congeners.

**Homologues** - subcategories of PCB congeners having equal numbers of chlorine substitutions. All the PCB chemicals that have the same number of chlorine atoms are said to belong to the same homolog group. Homolog groupings can vary from one to ten.

**Hydroseed** (or Hydraulically Applied Erosion Control Product, hydraulic mulch seeding, hydro-mulching, hydraseeding, ) - is a planting process that uses a slurry of seed and mulch. The slurry is transported in a tank, either truck or trailer mounted and sprayed over prepared ground.

**PCBs** - a synthetic organic chemical compound of chlorine attached to biphenyl. PCBs were widely used as dielectric and coolant fluids in electrical apparatus, cutting fluids for machining operations, carbonless copy paper and in heat transfer fluids. Due to PCBs' environmental toxicity and classification as a persistent organic pollutant, PCB production was banned by the United States in 1979.

**Practical Quantification Limit (PQL)** - the lowest concentration measurement that can be reliably achieved within the specified limits of precision and accuracy during routine laboratory operating conditions.

**Quality Assurance Project Plan (QAPP)** – a document that establishes the guideline for sampling and analysis to ensure data quality and consistency in interpretation of the data.

**Surfactant** - substance that lowers surface tension. Used as an additive in some Hydroseed to enhance moisture retention and reduce water repellency.

**Tackifier** - additive in some Hydroseed to enhance the chemical bond within the mulch matrix to help hold and protect seed and for better moisture retention. Used to reduce erosion on difficult slopes, challenging soil conditions, high surface winds or heavy weather conditions.

**Total PCBs** – are the sum total of all valid 209 congeners reported from the laboratory data. How the data is interpreted and totaled may vary based on blanked corrected data, use of non- detect values,

Chart 1 – Homologue Pattern of Tackifier #2 from Product #2

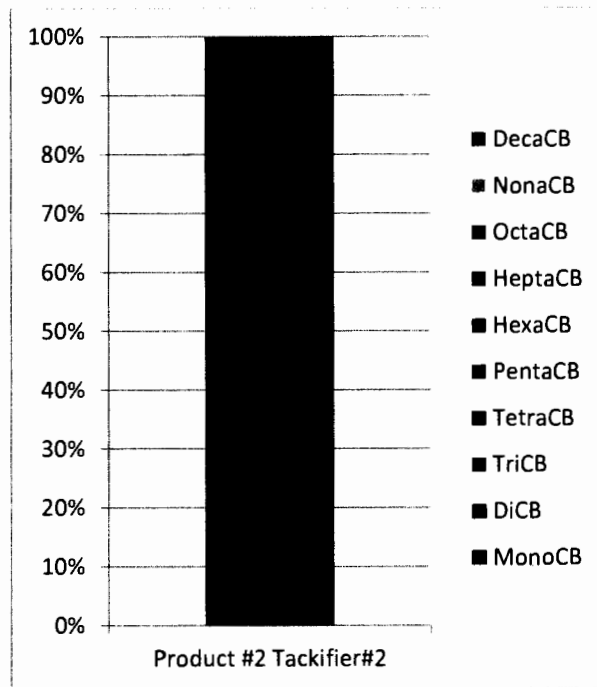
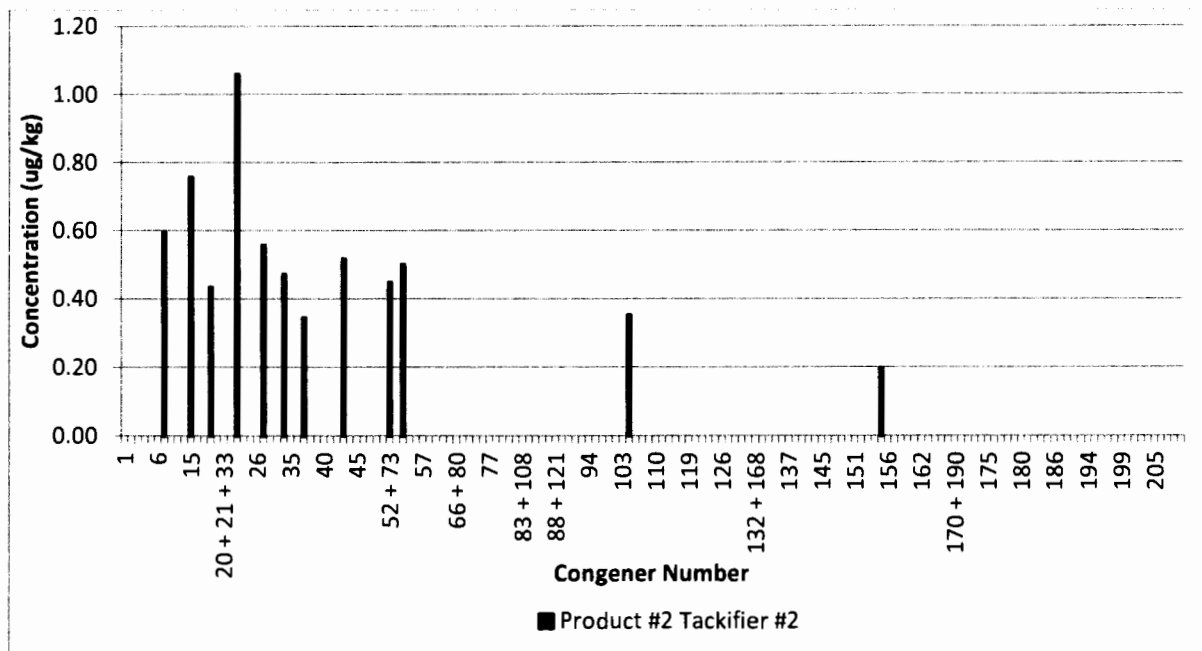


Chart 2 – Congener Pattern of Tackifier #2 from Product #2



The Axys data package also included quantification of Aroclors which are trade names for historical commercial mixtures of PCBs. Tackifier #2 in Product #2 had a detection of Aroclor 1242 at a concentration of 5.56 ppb. Note that Aroclors are calculated differently than Total PCBs, thus the difference in values. It should also be noted that just because the laboratory quantified this sample as Aroclor 1242, does not necessarily imply that Aroclor 1242 was present but rather that the sample had a similar congener pattern to what would be found in Aroclor 1242. This was the only Aroclor detection in the entire dataset.

## Conclusions and Recommendations

This study should be considered an initial screening procedure of the various Hydroseed matrices. It is recommended that additional testing be conducted to further substantiate the results prior to implementation of any decisions on product selection or product modifications.

As stated in the Project Description, the purpose of this study was to confirm the elevated levels observed from the City's original analysis and to identify specific component(s) that may be contributing to these elevated levels. Samples from the SRRTTF dataset were unable to confirm the elevated levels of PCBs found by the city of Spokane's previous analysis of Nature's Own Hydroseed manufactured by Hamilton Manufacturing, Inc. The orders of magnitude difference between the City's original test results and that of this study demonstrates why additional confirmatory testing is required prior to making purchasing decisions. There are many variables that can affect the overall results and consistency of those results, such as: product variations, contamination during product handling and sampling, laboratory error, etc.

However, this study does indicate that PCBs are commonly detected in Hydroseed, particularly in the dye, some base materials and tackifiers. Because of the consistent PCB concentration in the dyes, it is recommended that the State of Washington consider the potential for dye-free Hydroseed application. However, as suggested above additional product testing should be performed to provide support for changes to materials standard specifications. An alternative may be to further research the type of dye used in Product #4, which did not have detectable PCB concentrations per Method MLA-007. It should be determined if this dye is in fact different than the other three dye products, and what the concentrations are using more sensitive procedures such as EPA Method 1668.

Another approach to using this data would be to investigate why Product #2 and Product #4 Finished Products have lower PCB detection limits. This may be a result of using unique ingredients, or manufacturing differences, such as process or location.

Tackifier #2 in Product #2 had detectable levels of Aroclor 1242 at significant concentrations relative to the water quality standards. After confirmatory testing, the manufacturer of Product #2 should consider using either tackifiers #1 or #3, or other low-PCB containing tackifiers used by the industry.

## Appendix A

### PCB Product Sampling QAPP Addendum

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*Supplemental Product Sampling: Spokane River Regional Toxics Task Force*  
Prepared by City of Spokane Wastewater Management Department  
March 2015

#### Background

The City of Spokane recently performed PCB product sampling under a Department of Ecology Grant of Regional or Statewide Significance (GRSS), number G1400545. Product sampling followed the procedures in the approved Quality Assurance Project Plan, Polychlorinated Biphenyls in Municipal Products, prepared by LimnoTech, August 5, 2014. Additional sampling beyond the scope of the grant will be performed to help further understand the sources and content of PCBs in products.

#### Description of Additional Studies

The Spokane River Regional Toxics Task Force has authorized studies that supplement the work performed under the City's GRSS Grant. The objective of these efforts is to further identify the sources of PCBs in products and components of products. This work will assist manufacturers in producing lower-PCB alternatives for the State and City to purchase, therefore reducing the amount of PCBs imported to our watersheds.

The first samples to be collected will include various brands of hydroseed and their associated components. Some of the components to be sampled will include items such as dye, surfactant, and water used in the manufacturing process. Other products may be sampled, including items such as tackifiers and different formulations of 2,4-D, as funding allows. (A separate QAPP will be prepared for 2,4-D prior to sampling due to the complex nature of pesticide testing.)

#### Sampling, Measurement, and Quality Control Procedures

Sampling will be performed by the manufacturer in many cases. A copy of the QAPP and this addendum will be sent to the sampler to ensure proper collection.

The SAMPLING PROCEDURES in Section 6 of the QAPP will be followed for sample collection, with the following exceptions:

- Because manufacturers may not have the standard sampling equipment on hand, the contract laboratory will prepare and ship sampling kits including coolers, sample instructions, gloves, laboratory-prepared sample jars, and chain of custody to the sampler.
- Sample labeling: Samples will be labeled by the sampler at the time of sample collection using the following format:
  - o Manufacturer ID - Product ID - collection date (MMDDYY) - collection time (military).
    - Example: XYZ Manufacturing collected a sample of their dye on March 17, 2015 at 3:00 in the afternoon. The sample would be labeled XYZ-dye-030715-1500
    - The Manufacturer and Product ID codes will be chosen by the sampler and a written description will be sent to the contract laboratory with the samples.

The MEASUREMENT PROCEDURES in Section 7 of the QAPP originally included only EPA Method 1668, which gives results for all 209 PCB congeners to a very low detection limit, but is more costly. Based on funding and

HP3 9/23/2015

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## EPA's Plan for Addressing PCBs in the Spokane River

July 14, 2015

This document sets out EPA's schedule, detailed more fully below, in response to the Order issued on March 16, 2015, by the U.S. District Court in Sierra Club, et al. v. McLerran, No. 11-CV-1759-BJR (March 16, 2015). In its Order, the Court directed EPA to:

[C]onsult with Ecology and file herein, within 120 days of the date of this order, a complete and duly adopted reasonable schedule for the measuring and completion of the work of the Task Force, including quantifiable benchmarks, plans for acquiring missing scientific information, deadlines for completed scientific studies, concrete permitting recommendations for the interim, specific standards upon which to judge the Task Force's effectiveness, and a definite endpoint at which time Ecology must pursue and finalize its TMDL.

EPA sets out its schedule below, following a more general presentation of the variety of regulatory and non-regulatory considerations informing EPA's plan for addressing PCBs in the Spokane River.

### SUMMARY

The goal of this plan is the attainment of applicable water quality standards for PCBs in the Spokane River. The plan describes significant ongoing regulatory and non-regulatory actions to identify and address sources of PCB pollution in the river. The plan provides that if the Spokane River remains impaired<sup>1</sup> for PCBs, the Washington Department of Ecology (Ecology) will initiate a TMDL to address the impairments by no later than July 15, 2028, and will finalize that TMDL by no later than July 1, 2030. Such a TMDL would establish PCB loads for point sources and nonpoint sources that would achieve the applicable water quality standards for PCBs. For the time period leading up to July 15, 2028, EPA's plan provides "benchmarks"—specified instream concentrations of PCBs that decrease incrementally over time. If the quantifiable benchmarks are not attained by specified dates certain (identified in the schedule in this document), then the trigger to initiate development of a TMDL would be accelerated. Under this schedule, a TMDL could be completed as early as July 2019 or as late as July 2030.

As described in greater detail below, all individually permitted dischargers to the Spokane River will be installing advanced treatment technologies that will significantly reduce their discharge of PCBs. As a result of those reductions and others, as well as uncertain but likely advances in analytical technologies to measure PCBs, a PCB TMDL developed pursuant to EPA's schedule will be more scientifically and technically defensible than any TMDL for PCBs that could be developed in the interim. This schedule reflects EPA's judgment that the actions being taken now to reduce PCBs are critical to the development of a TMDL in the future and are intended to maximize the

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<sup>1</sup> For purposes of this document, "impaired" means that segments of the Spokane River and/or its tributaries remain listed by the State of Washington as impaired for non-attainment of applicable water quality standards for PCBs as of the relevant benchmark date.



#### D. NPDES Permits for Discharges from Municipal Separate Storm Sewers

A comparatively recent expansion of the NPDES permitting program to apply to discharges from municipal separate storm sewer systems (commonly referred to as "MS4s") will reduce the discharge of particulate solids from diffuse sources that contaminate stormwater runoff, which in turn will further reduce the loading of PCBs into the Spokane River and adjacent waterbodies. Contaminated stormwater runoff is commonly transported and discharged through MS4s to nearby waterbodies through hundreds, if not thousands of outfalls within the MS4. Under federal rules, the MS4s discharging to the Spokane River watershed<sup>9</sup> were required to apply for discharge authorization under the NPDES permitting program.

Discharges from the Washington MS4s are authorized under an Ecology general permit issued in 2012 and expiring in 2019. Discharges from the Idaho MS4s are currently regulated by individual NPDES permits<sup>10</sup>; EPA is preparing to propose issuance of a state-wide MS4 general permit (during the current calendar year) that would replace the individual MS4 permits in Idaho. Under MS4 stormwater permits, each regulated MS4 is required to develop and implement a comprehensive stormwater program as defined by federal regulations at 40 CFR §122.34.

The current MS4 permits are reducing the loads of particulate solids to the Spokane River and are therefore reducing PCB loads. Reissuance of these permits provides opportunities for more targeted reductions. EPA's permitting recommendations, discussed above and included in Appendix B, contain several specific recommendations for MS4 permits, as well as recommendations for other types of stormwater general permits.

#### E. The Spokane River Regional Toxics Task Force

In recognition that nonpoint sources of PCBs in the Spokane watershed present a persistent and diffuse problem that cannot be easily addressed by direct regulatory authority, in 2011 Ecology made a significant change in reissued NPDES permits for facilities discharging into the Spokane River. The new permits required permittees to participate in the Task Force (Task Force, 2012).<sup>11</sup> Although participation is required by Ecology, the Task Force exists independent of and therefore is not legally required to account to Ecology. The Task Force includes voting members (representing NPDES permittees, state and local agencies other than Ecology, environmental groups and

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<sup>9</sup> Regulated MS4s discharging to the Spokane River watershed are located in the Washington cities of Spokane and Spokane Valley; Spokane County, Washington; Washington State University, Spokane campus; the Washington State Department of Transportation (areas located within the Spokane urbanized area); the Idaho cities of Coeur d'Alene and Post Falls; the Post Falls (Idaho) Highway District; Lakes (Idaho) Highway District; and the Idaho Transportation Department District 1.

<sup>10</sup> The EPA-issued individual permits for MS4s in the Spokane River watershed in Idaho expired in 2014.

<sup>11</sup> NPDES permittees who discharge to the Spokane River and are located in Idaho agreed to participate in the Task Force as well, and participation is similarly required in their NPDES permits, which EPA issued in September 2014.

other stakeholders) and advisory members (Ecology, tribal sovereigns, and EPA) (Task Force, 2014). The proceedings of the Task Force are facilitated by the William D. Ruckelshaus Center at Washington State University. The Task Force has convened approximately monthly since September 2011.<sup>12</sup> The goal of the Task Force is to “develop a comprehensive plan to bring the Spokane River into compliance with applicable water quality standards for PCBs” (Task Force, 2012, p. 7). This is to be accomplished through actions funded<sup>13</sup>, designed, and implemented by members of the Task Force to identify and eliminate diffuse nonpoint sources of PCBs. Although the Task Force’s work will be used if development of a TMDL is necessary, the Task Force was not convened for that purpose.

i. Task Force Accomplishments to Date

The Task Force has undertaken several projects and activities designed to identify sources and reduce PCBs in the Spokane River since it was created in 2011. In its June, 2015 “Coordinated Response,” the Task Force describes its operations, accomplishments, and future plans. A major project, currently underway, is the Task Force’s efforts to consolidate existing data about sources, fate, and transport of PCBs in the Spokane River and to address significant data gaps and inconsistencies. In November of 2013, a Task Force report identified the primary data gaps (in their decreasing order of importance): (1) determining magnitude of sources contributing to stormwater loads; (2) determining PCB sources upstream of the Idaho/Washington border; and (3) determining the significance of loading from atmospheric and groundwater sources. (LimnoTech, 2013). In August of 2014, the Task Force initiated a comprehensive, simultaneous data collection effort in Washington and Idaho. This data, collected during dry weather,<sup>14</sup> provided the first contemporaneous “snapshot” of PCBs in the Spokane River from Lake Coeur d’Alene to Nine Mile Dam. The Task Force will continue to collect additional data to complete the source characterization and quantification throughout 2015 and 2016 (Task Force, 2015).

In addition to data collection and analysis, the Task Force and its members individually have taken actions to identify and reduce diffuse sources of PCBs that impact stormwater. They are currently engaged in product testing to identify current consumer products with high levels of PCBs that have the potential to be released to the river. Task Force-sponsored analysis demonstrated that specific “hydroseed” products, used to manage stormwater erosion for many types of construction activities, contain elevated levels of PCBs. Because hydroseed is used to manage stormwater,

<sup>12</sup> The Memorandum of Agreement that governs the formation and activities of the Task Force provides that the Task Force shall continue in effect for the duration of the Ecology 2011 through 2016 NPDES wastewater permit cycle. The Task Force is expected to continue thereafter if future NPDES wastewater permits require participation in the Task Force (Task Force, 2012, p. 1). Organizational documents, meeting notes, meeting schedules, and an annual reports of Task Force activities are maintained at a website. See [www.srrttf.org](http://www.srrttf.org).

<sup>13</sup> Task Force funding comes from NPDES permittee Task Force members and from Ecology. To date, the Task Force has spent approximately \$1 million. Recently the Washington legislature appropriated \$310K over two years to support continuation of the Task Force’s work.

<sup>14</sup> The Task Force intends to conduct a similar data collection effort for wet weather conditions, but the high water necessary to collect such data did not occur in the 2014-2015 winter.

any PCBs in hydroseed will end up in the river. The Task Force is working collaboratively with manufacturers and State agencies to define construction specifications for hydroseed products and to inform the State purchasing process (Ecology, 2015). Hatchery fish food has also been identified as a potential source that readily enters the river. The Task Force's product testing efforts will continue to investigate this, as well as other potential sources of PCBs.

The Task Force has been active in political and policy arenas to encourage PCB restrictions, to address and reduce inadvertently generated PCBs, and to encourage preferential purchase of low- and no-PCB products for public use. The Task Force has also collaborated on public outreach activities to educate and engage the Spokane community on the risks of PCBs and the need to avoid activities that may release PCBs.

Washington enacted State legislation in 2014 that directed the Washington Department of Enterprise Services to "establish purchasing and procurement policies that provide a preference for products and products in packaging that does not contain polychlorinated biphenyls." RCW 39.26.280. The legislation also precluded other State agencies from knowingly purchasing "products or products in packaging containing polychlorinated biphenyls above the practical quantification limit except when it is not cost-effective or technically feasible to do so." *Id.* This legislation was adopted, in part, as a result of Task Force efforts to discourage use of products containing PCBs.

In June of 2014, the City of Spokane enacted a similar municipal ordinance providing a preference in City purchases for products and products in packaging that do not contain PCBs.<sup>15</sup> Implementation of the municipal ordinance should not only reduce the introduction materials containing PCBs, but also facilitate the development of an economic market with reduced amounts of PCBs.

## ii. Further Work of the Task Force

The Task Force is into its third year of a phased five-year workplan (Task Force, 2013). Under the work plan, Phase 3 (analysis of data and characterization / quantification of PCB sources) and Phase 4 (assessment of potential BMPs) are scheduled for completion by December 2016. The Task Force anticipates a delay in completion of Phase 3 because this past winter wasn't wet enough to allow it to complete wet weather sampling. Completion of Phase 3, including the identification of locations with the highest PCB concentrations, should enable closure of one of the data gaps previously identified as the highest priority--source identification.

---

<sup>15</sup> The ordinance provides as follows: Specifically, the ordinance provides that:

No department may knowingly purchase products or products in packaging containing polychlorinated biphenyls above the practical quantification limit except when it is not cost-effective or technically feasible to do so. "Practical quantification limit" means the lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, or using EPA Method 1668. "Not cost effective" means compliance with this requirement would increase the purchase price of the product by at least twenty-five percent.

Remaining phases under the workplan will address developing an inventory of sources and sinks of PCBs and developing a comprehensive plan for reducing PCBs.

### SCHEDULE

In response to the Court's March 16, 2015 Order, and following consultation with Ecology, EPA sets out below its schedule for achievement of benchmarks and triggers for TMDL initiation and completion. In submitting this schedule, EPA clarifies that it does not interpret its regulations at 40 C.F.R. 130.7(d)(1), which are referenced in the Court's order, to give EPA the authority to establish a legally enforceable schedule for either the Task Force or the State. EPA's regulation states in relevant part that "[s]chedules for submission of TMDLs shall be determined by the Regional Administrator and the State." The regulation speaks to the collaborative nature of the development of such schedules. However, it does not authorize EPA to establish a legally enforceable schedule for State submissions of TMDLs or for work by an independent task force. This interpretation is consistent with past EPA guidance that "EPA *will not take any action* on the [State] schedule ...," and that "the schedule is intended *to help* the public and EPA to understand the state's priorities and *assist* in work planning." (EPA, 2005, p. 63 (emphasis added)). EPA has not relied on the referenced regulation as the basis for this schedule, but rather has developed this schedule for the State's initiation and completion of a PCB TMDL in response to the Court's remand instructions.

1. December 31, 2016: The Task Force completes a Comprehensive Plan to bring the Spokane River into compliance with applicable water quality standards for PCBs. The comprehensive plan should include the following:
  - a. A summary of the available data for PCBs in Spokane River water, fish tissue, and sediments.
  - b. A list of the identified sources of PCBs in the Spokane River with estimates of current loadings.
  - c. A range of BMPs expected to reduce or eliminate PCBs for each source or category of sources.
  - d. Recommendations for BMP implementation.
  - e. Recommendations for future studies to address remaining data gaps.

If the Task Force does not submit a final Comprehensive Plan or if in EPA's determination the Comprehensive Plan does not adequately address the items listed above, then Ecology would immediately initiate development of a PCB TMDL for impaired segments of the Spokane River, and such TMDL would be submitted for EPA's approval by July 15, 2019.

2. December 15, 2020: Instream concentration of PCBs meets 200 pg/L based on the annual central tendency of the preceding year. EPA issues a determination by July 15, 2021, after conferring with Ecology and the Spokane Tribe, whether the instream concentration of PCBs meets 200 pg/L. If EPA determines that instream concentrations exceed 200 pg/L, then Ecology would immediately initiate development of a PCB TMDL for impaired

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**CITY OF SEATTLE**  
**ORDINANCE** 124593  
**COUNCIL BILL** 118190

AN ORDINANCE relating to the Seattle Electrical Code amending Section 22.300.016 of the Seattle Municipal Code, adopting the 2014 National Electrical Code with Seattle amendments, and adopting, by incorporation, specific portions of the 2014 Washington Administrative Code Chapter 296-46B (Washington State Electrical Rule); and repealing Sections 2-34 of Ordinance 122970.

**BE IT ORDAINED BY THE CITY OF SEATTLE AS FOLLOWS:**

Section 1. Section 22.300.016 of the Seattle Municipal Code is amended as follows:

~~((SMC))~~ **22.300.016 Adoption of the Electrical Code.**

The Seattle Electrical Code, consists of portions of ((F))the National Electrical Code, ((2008))2014 edition, published by the National Fire Protection Association((-and)); selected portions of the 2014 edition of the Washington Administrative Code (WAC) Chapter 296-46B, copies of which are filed with the City Clerk in C.F. 313965 and C.F. 313966((-)); amendments, including deletions and additions, to the 2014 National Electrical Code and the selected portions of WAC 296-46B; and Chapter 80, relating to administration, permitting and enforcement are adopted by this ordinance. ((are hereby adopted and by this reference made a part of this subtitle. The National Electrical Code, 2008 edition, and WAC 296-46B, together with the amendments and additions thereto adopted by this ordinance, constitute the Seattle Electrical Code.))

\*\*\*

Section 2. The 2008 Seattle Electrical Code adopted by Ordinance 122970 is hereby repealed.

\*\*\*

Section 3. Article 80 of the Seattle Electrical Code is adopted to read as follows:

**ARTICLE 80**

## Administration

Article 80 is entirely Seattle amendments to the *National Electrical Code* (NEC) and aligns the administration and enforcement of this *Code* with the administrative chapters of the other Seattle technical codes.

### I. Title, Purpose and Scope

**80.1 Title.** This code shall be known as the "Seattle Electrical Code" and may be so cited. It is referred to herein as the "Electrical Code" or "this *Code*."

**(A) Referenced Codes.** The code provisions and standards referenced in this *Code* are considered part of this *Code* to the extent prescribed by each such reference. Where differences occur between provisions of this *Code* and referenced codes and standards, the provisions of this *Code* govern.

**(B) Metric Units.** Whenever in this *Code* there is a conflict between metric units of measurement and U.S. customary units, the U.S. customary units govern.

### 80.2 Purpose.

**(A) Protection from Hazards.** The purpose of this code is to promote public safety in a practical manner from hazards arising from the use of electricity. This *Code* is intended to provide for and promote the health, safety and welfare of the general public, and not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this *Code*. This *Code* is not intended as a design specification nor an instruction manual for untrained persons.

**(B) Chapter 296-46B Washington Administrative Code.** An additional purpose of this *Code* is to provide equal, higher or better standards of construction and equal, higher or better standards of materials, devices, appliances and equipment than that required by the State of Washington under the provisions of Revised Code of Washington (RCW) Chapter 19.28. Only those sections of the Washington State Electrical Code adopted in 2014 amending the 2014

C57.12.01-1989, *General Requirements for Dry-Type Distribution and Power Transformers.*

Informational Note No. 2: Additional losses may occur in some transformers where nonsinusoidal currents are present, resulting in increased heat in the transformer above its rating. See ANSI/IEEE C57.110-1993, *Recommended Practice for Establishing Transformer Capability When Supplying Nonsinusoidal Load Currents*, where transformers are utilized with nonlinear loads.

Informational Note: No. 3: See *Seattle Building Code Chapter 4, Special Detailed Requirements Based on Use and Occupancy* for additional private and utility vault ventilation and other minimum construction requirements.

Transformers with ventilating openings shall be installed so that the ventilating openings are not blocked by walls or other obstructions. The required clearances shall be clearly marked on the transformer.

\*\*\*

#### **450.19 Locations and Construction.**

**(A) Location of Pad-Mounted Transformers.** ~~((See Figures 450-1 and 450-2 in Section 450.27 of this Code.~~

~~**(B) Total Underground Transformers.** Openings in enclosures for total underground transformers shall not be located less than 3.0 m (10 ft) from a doorway, operable window, stairway or fire escape.~~

~~**(C) Transformer Vault Construction.**~~ See ((Section 422)) *Seattle Building Code Chapter 4, Special Detailed Requirements Based on Use and Occupancy* for private and utility vault minimum standards.

## **II. Specific Provisions Applicable to Different Types of Transformers**



**450.20 Rating of Dry-Type Transformers.** Dry-type transformers shall be rated not less than the load served as determined in accordance with Article 220 of this Code.

\*\*\*

**450.26 Oil-Insulated Transformers Installed Indoors.** Oil-insulated transformers installed indoors shall be installed in a vault constructed as specified in Chapter 4 of the *Seattle Building Code*. ~~((Part III of this article.))~~

~~((Exception No. 1: Where the total capacity does not exceed 112½ kVA, the vault specified in Part III of this article shall be permitted to be constructed of reinforced concrete that is not less than 100 mm (4 in.) thick.))~~

Exception No. ~~1~~((2)): Where the nominal voltage does not exceed 1000, a vault shall not be required if suitable arrangements are made to prevent a transformer oil fire from igniting other materials and the total capacity in one location does not exceed 10 kVA in a section of the building classified as combustible or 75 kVA where the surrounding structure is classified as fire-resistant construction.

Exception No. ~~2~~((3)): Electric furnace transformers that have a total rating not exceeding 75 kVA shall be permitted to be installed without a vault in a building or room of fire-resistant construction, provided suitable arrangements are made to prevent a transformer oil fire from spreading to other combustible material.

Exception No. ~~3~~((4)): A transformer that has a total rating not exceeding 75 kVA and a supply voltage of 1000 volts or less that is an integral part of charged-particle-accelerating equipment shall be permitted to be installed without a vault in a building or room of noncombustible or fire-resistant construction, provided suitable arrangements are made to prevent a transformer oil fire from spreading to other combustible material.

Exception No. ~~4~~((5)): Transformers shall be permitted to be installed in a detached building that does not comply with Chapter 4 of the *Seattle Building Code* ~~((Part III of this article))~~ if neither

1 the building nor its contents present a fire hazard to any other building or property, and if the  
2 building is used only in supplying electric service and the interior is accessible only to qualified  
3 persons.

4 ~~((Exception No. 6: Oil-insulated transformers shall be permitted to be used without a vault in  
5 portable and mobile surface mining equipment (such as electric excavators) if each of the  
6 following conditions is met:~~

7 ~~(a) Provision is made for draining leaking fluid to the ground.~~

8 ~~(b) Safe egress is provided for personnel.~~

9 ~~(c) A minimum 6-mm (1/4-in.) steel barrier is provided for personnel protection.))~~

10 **450.27 Oil-Insulated Transformers Installed Outdoors.** ~~((Combustible material, combustible  
11 buildings, and parts of buildings, fire escapes, and door and window openings shall be  
12 safeguarded from fires originating in oil-insulated transformers installed on roofs, attached to or  
13 adjacent to a building or combustible material.~~

14 ~~In cases where the transformer installation presents a fire hazard, one or more of the  
15 following safeguards shall be applied according to the degree of hazard involved:~~

16 ~~(1) Space separations~~

17 ~~(2) Fire-resistant barriers~~

18 ~~(3) Automatic fire suppression systems~~

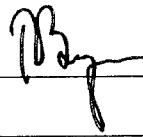
19 ~~(4) Enclosures that confine the oil of a ruptured transformer tank~~

20 ~~Oil enclosures shall be permitted to consist of fire-resistant dikes, curbed areas or basins,  
21 or trenches filled with coarse, crushed stone. Oil enclosures shall be provided with trapped drains  
22 where the exposure and the quantity of oil involved are such that removal of oil is important.~~

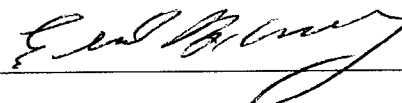
23 ~~Informational Note: For additional information on transformers installed on poles or  
24 structures or under ground, see ANSI C2-2007, National Electrical Safety Code.))~~

1 Section 44. This ordinance shall take effect and be in force 30 days after its approval by  
2 the Mayor, but if not approved and returned by the Mayor within ten days after presentation, it  
3 shall take effect as provided by Seattle Municipal Code Section 1.04.020.

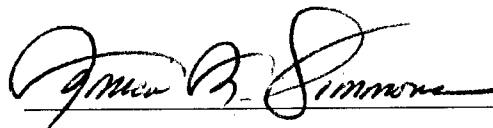
4 Passed by the City Council the 29<sup>th</sup> day of September, 2014, and  
5 signed by me in open session in authentication of its passage this  
6 29<sup>th</sup> day of September, 2014.

7  
8   
9 President \_\_\_\_\_ of the City Council

10  
11 Approved by me this 13<sup>th</sup> day of October, 2014.

12  
13   
14 Edward B. Murray, Mayor

15  
16 Filed by me this 13<sup>th</sup> day of October, 2014.

17  
18   
19 Monica Martinez Simmons, City Clerk

20 (Seal)

35

35



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## City of Seattle Legislative Information Service

Information retrieved on February 27, 2017 3:40 PM

**Resolution Number: 30487**

A Resolution relating to persistent, bioaccumulative, toxic chemicals (PBTs), stating the City of Seattle's intent to reduce its use of PBTs, and setting forth a work program. (PBTs).

**Status:** Adopted as Amended**Date adopted by Full Council:** July 1, 2002**Vote:** 9-0**Date introduced/referred to committee:** July 1, 2002**Committee:** Introduction and Adoption**Sponsor:** WILLS**Committee Recommendation:****Date of Committee Recommendation:****Committee Vote:**

**Index Terms:** PURCHASING, STATING-POLICY, ADMINISTRATIVE-PROCEDURES, POLLUTION, ENVIRONMENTAL-PROTECTION, WATER-POLLUTION, ENVIRONMENTAL-CLEANUP, ENVIRONMENTAL-HEALTH, ENVIRONMENTAL-PLANNING

**References/Related Documents:** Related: Res. 29949**Fiscal Note:** (No fiscal note available at this time)**Text**

WHEREAS, a group of pollutants known as Persistent Bioaccumulative Toxic chemicals (PBTs) are toxic, persist in the environment and build up in the food chain, and can pose risks to public health and the environment; and

WHEREAS, the Washington State Department of Ecology is developing a list of priority PBTs that includes chemicals that Ecology believes require greater attention because of their persistence, bioaccumulation and toxicity characteristics; and

WHEREAS, phasing out the use, production and release of PBTs is important to protecting environmental and public health because once these chemicals are produced, it is difficult and costly to manage, destroy or degrade them; and

WHEREAS, respected expert associations and agencies including the American Public Health Association, the United Nations Environment Program, the Chicago Medical Society and the International Joint Commission of the U.S. and Canadian governments, have agreed upon the benefits of reducing certain PBT pollution in the environment; and

WHEREAS, the Washington State Department of Ecology is pursuing a plan to reduce and eliminate PBTs in the state, including mercury, dioxin and PCBs; and

WHEREAS, the City has, in recent years, established a strong policy framework to guide the City's actions and investments toward environmental stewardship and sustainability, including:

- \* Ordinance 120121, which created the Office of Sustainability and Environment (OSE), which established OSE's role in integrating sustainability and environmental values into all City plans, policies, and programs, and directed OSE to present its work plan to the City Council; and

- \* The 2002 Earth Day Resolution that reaffirmed the City's commitment to continuous improvement in environmental management by the City, as a means to reduce the potential human health and environmental risks associated with City operations; and

- \* Resolution 29949 that adopted new approaches and policies for purchasing processes directs the City to balance competing goals including social, economic, and environmental values; and

- \* The City's Proclamation on Puget Sound orca whales that identifies the reduction and elimination of the use of toxic substances by government, corporations and families as a critical necessity for protection of the species; and

WHEREAS, potential adverse environmental and health effects from PBTs may be reduced through purchasing decisions that reduce or eliminate products that result in the creation or release of PBTs; and alternative, less toxic options exist for many products, NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SEATTLE, THE MAYOR CONCURRING, THAT:

Section 1.

The City of Seattle considers persistent pollution prevention a high priority for action to reduce risk to public and environmental health, and intends by this resolution to encourage the reduction of pollution from PBTs.

Section 2.

The City of Seattle will consider the presence of PBTs and the potential for their release in making purchasing decisions by:

- a) Developing and applying criteria that differentiate products containing PBTs and those that result in the release of PBTs during production or disposal from those that do not; and

- b) Developing an implementation plan with reduction targets by October 2002 for considering these criteria along with other environmental, social, and economic factors when purchasing products in city departments, offices and agencies in order to reduce pollution from PBTs. Items to be considered in the development of the implementation plan will be determined by identifying and analyzing City uses of products containing chemicals identified on the Department of Ecology PBT priority list or products that result in the generation of such PBTs during their manufacture, including but not limited to, paper, penta-treated wood, mercury switches in fleet vehicles, and PVC building materials and office supplies. Implementation plan actions will be prioritized based on reduction opportunity potential, technical feasibility, economic feasibility, and protection of human health and the environment. As a general rule, the use of an alternative product should be considered economically feasible if its cost, including cost of application, is within 110% of the full costs of the product of concern. In assessing economic feasibility, long-term public health and environmental implications should be considered, as well as the opportunity to stimulate the development of alternatives. By encouraging the development of new products, the City's purchasing policies may help encourage market transformation.

nsformation and drive costs down below the 110% threshold.

Adopted by the City Council the \_\_\_\_ day of \_\_\_\_\_, 2002, and signed by me in open session in authentication of its adoption this \_\_\_\_ day of \_\_\_\_\_, 2002. \_\_\_\_\_ President of the City Council

THE MAYOR CONCURRING: \_\_\_\_\_ Mayor

Filed by me this \_\_\_\_ day of \_\_\_\_\_, 2002. \_\_\_\_\_ City Clerk

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City of Seattle

## **City of Seattle Sustainable Purchasing Policy**

Published by: Department of Finance and Administrative Services, City Purchasing

Original publication date – 2004

Modified version – August 11, 2008

### **1. Purpose**

In accordance with the City of Seattle environmentally preferable purchasing ordinance, the City of Seattle recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a diverse, equitable, and vibrant community and economy. The City recognizes that the products and services the City buys have inherent social, human, health, environmental and economic impacts and that the City should make procurement decisions that embody, promote and encourage the City's commitment to sustainability.

This Sustainable Procurement Policy is intended to:

- Encourage the purchase and use of materials, products and services that best align with the City's fiscal, environmental, climate change, social, community and performance goals;
- Reduce the spectrum of environmental impacts from City use of products, including reduction of greenhouse gas emissions, reduction of landfill waste, health and safety risks, and resource consumption;
- Incorporate sustainability standards into procurement decisions;
- Empower Department and City Purchasing staff to be innovative and demonstrate leadership by incorporating progressive and best-practice sustainability specifications, strategies and practices in procurement decisions;
- Encourage vendors to promote products and services that they offer which are most suited to the City sustainability principles;
- Complement City ordinances and sustainability policies;
- Encourage and promote both local and national companies to bring forward emerging and progressive sustainable products and services, by being a consumer of such products and companies; and
- Communicate the City's commitment to sustainable procurement, by modeling the best product and services choices to citizens, other public agencies and private companies.

### **2. Organizations Affected**

All City departments that make purchases of goods and services or that contract with others to make purchases.

### **3. Ordinance and Regulation**

The City has the following ordinances and policies that govern sustainable purchasing:

1. SMC 20.60.200 et. Seq., Reusable Products, Recycled Content Products, and Recyclable Products Procurement Program
2. Resolution 27828, directing Solid Waste to develop policies and practices to encourage, increase, and require recycling, waste reduction, and the purchase of recycled products.
3. Resolution 28556, authorizing the Director of ESD to develop a "Recycled-content Procurement Plan."
4. Resolution 29949 –implementation of Copernicus, encouraging the City to act as a regional partner in environmental protection
5. City Council Resolution #30487 on Persistent Bioaccumulative Toxins
6. Executive Order for Paper - #01-05
7. City Pesticides Reduction rules
8. City Sustainable Building Action Plan
9. City Green Fleets Initiative
10. Seattle Green Ribbon Commission Report on Greenhouse Gases
11. Seattle Solid Waste Management Comprehensive Plan)

### **4. Policy**

#### **a. General Policy Statement**

The City shall acquire its goods and services in a manner that integrates fiscal responsibility, social equity, women and minority business opportunity, and environmental stewardship. Each City Department shall comply with this policy and actively encourage department decisions that reflect the policy objectives. City Purchasing (Department of Finance and Administrative Services ), shall actively promote and encourage product and service acquisitions compliant to the policies and guidelines adopted herein.

#### **b. Sustainability Factors**

Environmental factors to be considered in product and service acquisitions include, but are not limited to, the assessment of:

- Pollutant releases and toxins, especially persistent bioaccumulative toxins (PBTs), air emissions, and water pollution;
- Waste generation and waste minimization;
- Greenhouse gas emissions;
- Recyclability and Recycled content;

- Energy consumption, energy efficiency, use of renewable energy;
- Depletion of natural resources; and
- Potential impact on human health and the environment;
- Impacts on biodiversity
- Environmental practices that vendors and manufacturers have incorporated into their office and production process.

**c. Preferences**

City Purchasing does not calculate a direct price preference for recycled products in the selection of winning bidders because the City prefers to directly implement product decisions that are most environmentally preferable.

The City instead establishes a minimum specification with the most environmentally preferable solutions for particular products, and may also utilize a scored evaluation criteria allowing additional points for positive environmental product options, corporate practices, and other environmental solutions proposed by the Bidder.

**d. Social Equity Factors**

Product and service acquisitions shall consider and incorporate other City policies of social equity, responsible purchasing, and justice, as appropriate to each acquisition, in a way that supports each of the policy initiatives holistically and in concert with each other:

- Women and minority business opportunity and participation
- Fair labor practices, health and retirement benefits, safety, livable wages, and worker rights.
- International Fair Labor Code of Conduct, including prohibitions on forced overtime, child labor, health and safety equal to the laws of the country of manufacturer.
- Human health impacts
- Environmental justice (disproportionate environmental and health impacts on different population groups)

**5. Use of Best Practices**

City Purchasing and City employees will utilize best practices in sustainable procurement as they evolve. As it applies to this policy, best practices in sustainable procurement are those that utilize leading edge sustainability factors, standards and procedures.

**6. Source Reduction and Reuse**

City Purchasing and City Departments will promote and encourage strategies to reduce consumption, due to the societal and community costs, such as landfill waste handling, toxin exposures, resource depletion, and greenhouse gas emissions:

- Reduced City consumption;
- Purchase of remanufactured, recycled, or reusable products;
- Minimized packaging;
- Reduced entry of toxin chemicals into the City consumption stream;
- Products that are durable, long lasting, reusable, recyclable, or otherwise greater less waste; and
- Manufacturer or vendor take-back programs and/or participation in the King County "Take Back" program.

## **7. Environmental Standards and Product and Certifications**

**Standards:** In accordance with SCM 20.60 the City standard for all acquisitions shall be compliant at list to:

- The U.S. Environmental Protection Agency (USEPA) standards whenever published for a product or services; and
- The State of Washington Prohibited Toxins list, that prohibits specified chemicals (see Washington Department of Ecology prohibited toxins <http://www.toxicfreelegacy.org/pbtlist.html>).

**Third-Party Certifications:** City Departments and City Purchasing shall apply the most stringent third-party label standard available for a product or service being acquired. The City shall use independent, third-party social and/or environmental (eco) product or service label certifications when writing specifications for, or procuring materials, products, or services, whenever a responsible label standard is available. Qualifying labels shall be:

- Developed and awarded by an impartial third-party;
- Developed in a public, transparent, and broad stakeholder process; and
- Represent specific and meaningful leadership criteria for that product or service category.

In addition, whenever possible, label standards used in product or service specifications should represent standards that take into account multiple attributes and life-cycle considerations, with claims verified by an independent third party.

## **8. City Code and State Law**

It is the intent of this policy to complement City code and State laws. When such code or law is updated to accommodate a more rigorous standard, the policy shall be considered to likewise require such additional provision.

## **9. Acquisition Responsibilities**

City Departments shall:

- Ensure City staff utilizes product and service standards and certifications and best practices that comply with this policy.
- Serve on specification or best practice teams, to collaborate with other departments and City Purchasing in standards, strategies and specifications;
- Ensure internal policies and procedures that reference this policy and incorporate the use of sustainable products and services that meet the intent of this policy.
- Encourage pilot testing for environmentally preferable/sustainable products.

City Purchasing shall:

- Promote and ensure that bid and contract strategies incorporate the most favorable standards and best practices in sustainable procurement.
- Stay current and informed on advances in sustainable procurement specifications and strategies;
- Consult with the experts available in the City when reviewing or designing specifications, to sure progressive and emerging specifications for the product or service being solicited;
- Research and incorporate the USEPA, EPEAT or other appropriate best standards; incorporate the applicable third-party seal or certification as a product or service standard;
- Prohibit toxins (see Washington State Department of Ecology list of prohibited Toxins) and seek exemptions from vendors as applicable;
- Encourage vendors to bring forward product and service approaches, solutions and alternatives;
- Ensure that evaluation criteria for selecting a product or service incorporates and encourages sustainable factors by providing scored points or incorporates minimum specifications;
- Ensure that the qualification of a company as a responsible bidder includes a criteria for incorporating environmental responsibility;
- Encourage and promote contracts to other public agencies that offer sustainable products and best practices.
- Ensure purchasing guidelines and other internal procedures reference this policy and incorporate best practices for specifying products and services that meet the intent of this policy;

- Integrate sustainable procurement boilerplate language into the solicitation templates, and maintain and update such language to incorporate evolving standards;
- Encourage pilot testing for environmentally preferable/sustainable products.

#### **10. Education and Technical Assistance**

DEA (City Purchasing) shall join Seattle Public Utilities (SPU), the Office of Sustainability and Environment (OSE), and other Departments to:

- Establish a Green Team to advise, strategize and promote environmental purchasing;
- Disseminate information to City staff about sustainability standards and environmentally preferable practices and strategies;
- Disseminate information about vendors and City contracts for such products or services;
- Encourage and participate in user groups and other opportunities to test and discuss new products.
- Appoint Evaluation Teams for solicitation specifications and selections that include users knowledgeable or informed of the sustainable purchasing objectives and product specifications, standards and labels; and
- Encourage pilot testing of new products or services.

#### **11. Data Collection and Performance Reporting**

City Purchasing shall:

- Require vendors supply data for performance tracking and evaluation of the City's environmentally responsible purchasing program upon request; and
- Compile records for producing an annual summary of the City's environmentally responsible/sustainable purchasing actions, and to evaluate the effectiveness in reducing the environmental impacts of City procurement.

Each City department shall cooperate in information gathering for the purposes of tracking, reporting, and evaluating the sustainable purchasing program.

#### **12. Market Enhancement**

City Purchasing shall join with and encourage City Departments to:

- Seek opportunities to cooperate with other jurisdictions to enhance markets for environmentally preferable/sustainable products, to obtain favorable prices, and to reduce waste packaging and product by combining purchases/contracting for the same or similar products; and
- Promote and encourage vendors, particularly local vendors, in production and distribution of emerging and progressive products and services.

## Definitions<sup>1</sup>

Environmentally Preferable Product: A product that has a reduced negative effect or increased positive effect on human health and the environment when compared with competing products that serve the same purpose. This comparison may consider raw materials acquisition, production, fabrication, manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal of the product. This term includes, but is not limited to, recyclable products, recycled products, and reusable products.

Performance: The efficacy of a product, material or service to accomplish its intended task or job

Life Cycle Assessment (LCA): The comprehensive examination of a product's environmental impacts throughout its lifetime, including new material extraction, transportation, manufacturing, use, and disposal.

Life Cycle Cost Assessment (LCCA): The comprehensive accounting of the total cost of ownership, including initial costs, energy and operational costs, longevity and efficacy of service and disposal costs.

Recyclable Product: A product or package made from a material for which curbside or drop-off collection systems are in place for a majority of City residents or businesses, to divert from City solid waste for use as a raw material in the manufacture of another product or the reuse of the same product.

Recycled Content Product: A product containing a minimum of twenty-five percent (25%) recycled materials except in those cases where the U.S. Environmental Protection Agency has adopted procurement guidelines under the Resource Conservation Recovery Act of 1976. In those cases, the minimum content of recycled material shall not be less than specified in the most current adopted issue of those guidelines.

Reusable Product: A product that can be used several times for an intended end use before being discarded, such as a washable food or beverage container or a refillable ballpoint pen .

Sustainable Product: A product that achieves performance objectives while respecting the City's values and balancing: environmental stewardship, social equity, fiscal responsibility and community enhancement.

Sustainable Purchasing: Purchasing materials, products, and labor in a manner that reflects fiscal responsibility, social equity, community and environmental stewardship.

---

<sup>1</sup> From SMC 20.60 or federal Executive Order





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Issuance Date: October 27, 2010  
Effective Date: December 1, 2010  
Expiration Date: November 30, 2015  
**Modification Date: September 13, 2012**

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
WASTE DISCHARGE PERMIT No. WA0031682**

State of Washington  
DEPARTMENT OF ECOLOGY  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

In compliance with the provisions of  
The State of Washington Water Pollution Control Law  
Chapter 90.48 Revised Code of Washington  
and  
The Federal Water Pollution Control Act  
(The Clean Water Act)  
Title 33 United States Code, Section 1342 et seq.

**City of Seattle, Seattle Public Utilities**  
700 Fifth Avenue, Suite 4900  
P.O. Box 34018  
Seattle, WA 98124-4018

The City of Seattle is authorized to discharge combined sewage and stormwater at eighty-seven (87) combined sewer overflow outfall locations as shown beginning on Page 6, and in accordance with the Special and General Conditions that follow.

---

Kevin C. Fitzpatrick  
Water Quality Section Manager  
Northwest Regional Office  
Washington State Department of Ecology

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### SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A	Combined Sewer Overflow Monitoring Report	Monthly	January 28, 2011
S3.E	Reporting Permit Violations	As necessary	
S3.F	Other Reporting	As necessary	
S4.E	Operations & Maintenance Manual Review Confirmation	Annually	March 30, 2011
S6.A	Annual Combined Sewer Overflow Report and Documentation of Compliance with Nine Minimum Controls	Annually	March 30, 2011
S6.B	Combined Sewer Overflow Reduction Plan Amendment	1/permit cycle with renewal application	May 31, 2015
S6.C	Engineering Reports & Plans and Specifications for CSO Reduction Projects	As necessary	
S7	Combined Sewer Overflow Reduction, Notification of Project Milestone Completion	Within 14 days after completion	See specifics in Permit Condition S7
S8.B	Identification of CSO Outfalls Meeting the State Regulatory Requirement	1/permit cycle, included in CSO Reduction Plan Amendment	May 31, 2015
S8.C.1	Post Construction Compliance Monitoring – Quality Assurance Project Plan for CSO #62	1/permit cycle	March 30, 2012
S8.C.1	Post Construction Compliance Monitoring – Quality Assurance Project Plan for CSO #13	1/permit cycle	August 30, 2015
S8.C.2	Post Construction Compliance Monitoring – Interim Data Report for CSO #62	1/permit cycle	November 30, 2015
S9	Outfall Rehabilitation Plan	1/permit cycle	October 31, 2015
S10.A	Sediment Sampling and Analysis Plans for CSOs #62, #107, #147, and #152	1/permit cycle	March 30, 2012
S10.A	Sediment Sampling and Analysis Plan for CSO #13	1/permit cycle	August 30, 2015
S10.B	Sediment Data Reports for CSO #62, #107, #147, & #152	1/permit cycle	November 30, 2015
S11	Application for Permit Renewal	1/permit cycle	May 31, 2015
G1.C	Notice of Change in Authorization	As necessary	
G4	Reporting Planned Changes	As necessary	
G5	Engineering Report for Construction or Modification Activities	As necessary	
G7	Permit Transfer	As necessary	
G20	Reporting Anticipated Noncompliance	As necessary	
G21	Reporting Other Information	As necessary	

## SPECIAL CONDITIONS

In this permit, the word "must" denotes an action that is mandatory and is equivalent to the word "shall" used in previous permits.

### S1. AUTHORIZED COMBINED SEWER OVERFLOW (CSO) DISCHARGE LOCATIONS

Subject to the conditions of this permit, the Permittee is authorized to discharge a combination of stormwater and wastewater from the CSO outfalls listed in the following table. The following list of combined sewer overflow (CSOs) outfalls represents occasional point sources of pollutants as a result of precipitation events. The law prohibits discharges from these sites except as a result of precipitation events. This permit does not authorize a discharge from a CSO that causes adverse impacts that threaten characteristic uses of the receiving water as identified in the water quality standards, Chapter 173-201A WAC.

Outfall Number	Overflow Outfall Location	Receiving Water Body	Latitude	Longitude
12	NE 60th Street at NE Windermere Road	Lake Washington	47° 40' 16" N	-122° 15' 11" W
13	Windermere Park NE 50th St.	Lake Washington	47° 39' 50" N	-122° 15' 55" W
14	55th Ave. NE at NE 43rd St.	Lake Washington	47° 39' 33" N	-122° 16' 05" W
15	51st Ave. NE at NE Laurelhurst Ln.	Lake Washington	47° 39' 19" N	-122° 16' 17" W
16	Webster Pt NE at W Laurelhurst Drive	Lake Washington	47° 38' 54" N	-122° 16' 41" W
18	38th Ave. NE at NE 41st St.	Union Bay	47° 39' 24" N	-122° 17' 16" W
19	NE 45th Street at Montlake Blvd. NE	Union Bay	47° 39' 40" N	-122° 17' 52" W
20	Shelby St. at E. Park Drive	Union Bay	47° 38' 49" N	-122° 18' 02" W
22	39th Avenue E at E Lakeside Blvd.	Union Bay	47° 38' 34" N	-122° 16' 58" W
24	43rd Ave. E. at E. Lee St.	Lake Washington	47° 37' 51" N	-122° 16' 34" W
25	43rd Ave. E. at E. Lee St.	Lake Washington	47° 37' 51" N	-122° 16' 33" W
26	Denny Blaine Pl. E.	Lake Washington	47° 37' 11" N	-122° 16' 46" W
27	Lake Washington Blvd.	Lake Washington	47° 36' 54" N	-122° 16' 49" W
28	Lake Washington Blvd. E. at E. Pike St.	Lake Washington	47° 36' 50" N	-122° 16' 50" W
29	Lake Washington Blvd. E. at E. James St.	Lake Washington	47° 36' 25" N	-122° 16' 57" W
30	Lake Washington Blvd. E. at E. Alder St.	Lake Washington	47° 36' 21" N	-122° 16' 58" W
31	Lake Washington Blvd. S. at S. Main St.	Lake Washington	47° 36' 01" N	-122° 17' 05" W
32	Lake Washington Blvd. S. at S. Dearborn St.	Lake Washington	47° 35' 45" N	-122° 17' 11" W

Outfall Number	Overflow Outfall Location	Receiving Water Body	Latitude	Longitude
33	Lake Washington Blvd. S. at S. Charles St.	Lake Washington	47° 35' 40" N	-122° 17' 12" W
34	Lake Washington Blvd. S. at S. Charles St.	Lake Washington	47° 35' 40" N	-122° 17' 12" W
35	Lake Washington Blvd. S. at S. Massachusetts St.	Lake Washington	47° 35' 15" N	-122° 17' 05" W
36	Lake Washington Blvd. S. at S. College St.	Lake Washington	47° 34' 57" N	-122° 17' 10" W
38	Lake Washington Blvd. S. at 45th Ave. S.	Lake Washington	47° 34' 17" N	-122° 16' 32" W
40	Lake Washington Blvd. S. at 49th Ave. S.	Lake Washington	47° 34' 06" N	-122° 16' 19" W
41	Lake Washington Blvd. S. at 50th Ave. S.	Lake Washington	47° 34' 05" N	-122° 16' 12" W
42	Lake Washington Blvd. S. at S. Snoqualmie St.	Lake Washington	47° 33' 44" N	-122° 15' 60" W
43	Lake Washington Blvd. S at S Alaska Street	Lake Washington	47° 33' 38" N	-122° 15' 50" W
44	Lake Washington Blvd. S - S of Juneau Street	Lake Washington	47° 32' 50" N	-122° 15' 18" W
45	57th Avenue South at South Brighton Street	Lake Washington	47° 32' 29" N	-122° 15' 35" W
46	S Island Drive at S Grattan Street	Lake Washington	47° 31' 46" N	-122° 15' 42" W
47	Seward Park Avenue S at S Henderson Street	Lake Washington	47° 31' 24" N	-122° 15' 47" W
48	Rainier Avenue S at S Perry Street	Lake Washington	47° 30' 58" N	-122° 15' 11" W
49	Rainier Ave. S. at S. Cooper Street	Lake Washington	47° 30' 49" N	-122° 15' 01" W
57	Seaview Avenue NW at NW 68th Street	Puget Sound - Central	47° 40' 42" N	-122° 24' 25" W
59	Seaview Ave. NW at NW 57th Street	Salmon Bay	47° 40' 13" N	-122° 24' 21" W
60	W Cramer Street at 39th Avenue NW	Salmon Bay	47° 40' 04" N	-122° 24' 27" W
61	W Ray Street at Logan Avenue W	Elliott Bay	47° 38' 35" N	-122° 25' 07" W
62	W Ray Street at Logan Avenue W	Elliott Bay	47° 38' 31" N	-122° 25' 04" W
64	32nd Avenue W at Logan Avenue W	Elliott Bay	47° 37' 54" N	-122° 23' 58" W
68	W Garfield Street at 17th Avenue W	Elliott Bay	47° 37' 59" N	-122° 22' 45" W
69	Alaskan Way at Vine Street	Elliott Bay	47° 36' 48" N	-122° 21' 08" W
70	Alaskan Way at University Street	Elliott Bay	47° 36' 21" N	-122° 20' 26" W
71	Alaskan Way at Madison Street	Elliott Bay	47° 36' 13" N	-122° 20' 19" W
72	Alaskan Way S at S Washington Street	Elliott Bay	47° 36' 03" N	-122° 20' 13" W
78	Harbor Avenue SW at Fairmont Avenue SW	Elliott Bay	47° 35' 15" N	-122° 22' 38" W



Outfall Number	Overflow Outfall Location	Receiving Water Body	Latitude	Longitude
80	Harbor Avenue SW at SW Maryland Place	Elliott Bay	47° 35' 36" N	-122° 22' 55" W
83	Alki Avenue SW at SW Arkansas Street	Puget Sound - Central	47° 35' 30" N	-122° 23' 42" W
85	Alki Avenue SW at Point Place SW	Puget Sound - Central	47° 34' 36" N	-122° 25' 12" W
88	SW Beach Drive – N of SW Bruce Street	Puget Sound - Central	47° 33' 20" N	-122° 24' 01" W
90	SW Beach Drive at Murray Avenue SW	Puget Sound – S-Central	47° 32' 24" N	-122° 24' 00" W
91	Fauntleroy Way SW - N of SW Trenton St. in Lincoln Park	Puget Sound – S-Central	47° 31' 32" N	-122° 23' 44" W
94	Fauntleroy Avenue SW - N of SW Director Street	Puget Sound – S-Central	47° 31' 25" N	-122° 23' 39" W
95	Fauntleroy Avenue SW at SW Brace Pt Drive	Puget Sound – S-Central	47° 31' 14" N	-122° 23' 45" W
99	SW Hinds Street at Duwamish River West Waterway	W Waterway of Duwamish River	47° 34' 25" N	-122° 21' 40" W
107	SW Hinds Street at Alaskan Way S	East Waterway of the Duwamish River	47° 34' 25" N	-122° 20' 34" W
111	S. Oregon St. at East Duwamish	Duwamish River	47° 33' 47" N	-122° 20' 43" W
120	Westlake Avenue N at Aurora Avenue N	Lake Union	47° 38' 43" N	-122° 20' 49" W
121	Westlake Avenue N at Crockett Street	Lake Union	47° 38' 17" N	-122° 20' 25" W
124	Westlake Avenue N - S of Aloha Street	Lake Union	47° 37' 36" N	-122° 20' 19" W
127	Fairview Avenue E at Yale Avenue E	Lake Union	47° 37' 47" N	-122° 19' 52" W
129	Fairview Avenue E at E Newton Street	Lake Union	47° 38' 12" N	-122° 19' 46" W
130	Fairview Ave. E. @ E. Lynn St.	Lake Union	47° 38' 23" N	-122° 19' 47" W
131	Fairview Avenue E at Louisa Street	Lake Union	47° 38' 32" N	-122° 19' 48" W
132	Fairview Avenue E. at E. Roanoke E.	Lake Union	47° 38' 36" N	-122° 19' 44" W
134	Fairview Avenue E at E Allison Street	Lake Union	47° 38' 59" N	-122° 19' 28" W
135	Eastlake Avenue E at Portage Bay Place E	Lake Union	47° 39' 08" N	-122° 19' 16" W
136	Portage Bay Place E at E Allison Street	Lake Union	47° 38' 56" N	-122° 19' 04" W
138	E. Shelby Street - Portage Bay	Portage Bay	47° 38' 49" N	-122° 18' 58" W
139	16th Avenue E at Louisa Street	Portage Bay	47° 38' 34" N	-122° 18' 38" W
140	E Shelby Street at W Park Drive	Portage Bay	47° 38' 49" N	-122° 18' 34" W
141	Brooklyn Avenue NE at Boat Street	Portage Bay	47° 39' 05" N	-122° 18' 52" W
144	Latona Avenue NE at NE Northlake Way	Lake Union	47° 39' 11" N	-122° 19' 32" W

Outfall Number	Overflow Outfall Location	Receiving Water Body	Latitude	Longitude
145	N 36th Street at NE Northlake Way	Lake Union	47° 39' 00" N	-122° 19' 50" W
146	Carr Place N at N Northlake Way	Lake Union	47° 38' 50" N	-122° 20' 23" W
147	Stone Way N. at Northlake Way	Lake Union	47° 38' 53" N	-122° 20' 34" W
148	8th Avenue NW at NW 41st Street	Lake Washington - Ship Canal	47° 39' 49" N	-122° 22' 00" W
150	24th Avenue NW and NW Market Street	Salmon Bay Waterway	47° 40' 00" N	-122° 23' 17" W
151/ 152	24th Avenue NW and NW Market Street	Salmon Bay Waterway	47° 40' 01" N	-122° 23' 17" W
	28th Avenue NW and NW Market Street	Salmon Bay Waterway	47° 40' 02" N	-122° 23' 34" W
161	N.E. 65th Street and 65th Avenue N.E.	Lake Washington	47° 40' 38" N	-122° 14' 42" W
165	Lake Washington Blvd. at S Alaska Street	Lake Washington	47° 33' 38" N	-122° 15' 50" W
168	Delridge Avenue SW at SW Myrtle Street	Longfellow Creek	47° 32' 21" N	-122° 21' 45" W
169	Between 24th and 25th Ave. SW N/O SW Thistle St.	Longfellow Creek	47° 31' 45" N	-122° 21' 50" W
170	27th Avenue SW at SW Webster Street	Longfellow Creek	47° 32' 25" N	-122° 21' 36" W
171	Rainier Ave. S at Ithaca Place S	Lake Washington	47° 31' 14" N	-122° 15' 33" W
174	NW 36th Street at 2nd Ave. NW	Lake Washington - Ship Canal	47° 39' 10" N	-122° 21' 35" W
175	E Garfield Street at Fairview Avenue E	Lake Union	47° 38' 02" N	-122° 19' 38" W

## S2. MONITORING REQUIREMENTS

### A. Monitoring Schedule

The Permittee must monitor all permitted outfalls with operating automatic flow monitoring equipment for discharge location, discharge duration, discharge volume, and weather-related information (precipitation and storm duration) in accordance with the below schedule. For sediment monitoring, see permit condition S.10. Sediment testing must use the laboratory method, detection level (DL), and quantitation level (QL) as specified in Appendix A or in corresponding Sampling and Analysis Plan (SAP)/Quality Assurance Project Plan (QAPP) documents. Alternative methods from 40 CFR Part 136 are acceptable if the DL and QL are equivalent to those specified in Appendix A, corresponding SAP/QAPP documents, or sufficient to produce a measurable quantity.

Parameter	Units	Minimum Sampling Frequency	Sample Type
<b>(1) Discharge</b>			
Discharge means an untreated CSO which will exit or has exited the CSO outfall.			
Volume Discharged	Gallons	Per Event <sup>c</sup>	Measurement/Calculation <sup>a,b</sup>
Discharge Duration	Hours	Per Event <sup>c</sup>	Measurement
Storm Duration	Hours	Per Event <sup>d</sup>	Measurement
Precipitation	Inches	Per Event <sup>c</sup>	Measurement/Calculation <sup>b</sup>
<b>(2) Sediment Monitoring</b>			
As specified in Permit Condition S10.			

Footnotes

<sup>a</sup>	Flow measurement must be continuous, except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. During periods of interrupted service, a calculation may be used to estimate the discharge volume. An explanation must be provided in the monthly DMR for all disruptions in flow measurement.
<sup>b</sup>	"Measurement/Calculation" means the total volume of the discharge or amount of precipitation event as estimated by direct measurement or indirectly by calculation (i.e. flow weirs, pressure transducers, tipping bucket). Precipitation must be measured by the nearest possible precipitation-measuring device and actively monitored during the period of interest.
<sup>c</sup>	"Per Event" means a unique flow event as defined in the <i>Permit Writer's Manual</i> , p. V-30. Ecology defines the minimum inter-event period (MIET) as 24 hours. A CSO event is considered to have ended only after at least 24 hours has elapsed since the last measured occurrence of an overflow.
<sup>d</sup>	Storm duration is the amount of total time when precipitation occurred that contributed to a discharge event. It is determined on a case-by-case basis.

**B. Sampling and Analytical Procedures<sup>1</sup>**

Samples and measurements taken to meet the requirements of this permit must represent the volume and nature of the monitored parameters. The Permittee must conduct representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions that may affect effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136.

<sup>1</sup> SPU must conduct sampling and measurement only for volume discharged and precipitation, as noted in the table beginning on page 10. Additional sampling and analyses may be required by Ecology in accordance with Section S3.E, S3.F, or S10.

C. Field Measurements and Monitoring

The Permittee must:

1. Select and use appropriate flow measurement, field measurement, and continuous monitoring devices and methods consistent with accepted scientific practices.
2. Install, calibrate, and maintain these devices to ensure the accuracy of the measurements is consistent with the accepted industry standard and the manufacturer's recommendation for that type of device.
3. Use field measurement devices as directed by the manufacturer and do not use reagents beyond their expiration dates.
4. Calibrate these devices at the frequency recommended by the manufacturer.
5. Calibrate flow monitoring devices at a minimum frequency of at least one calibration per year.
6. Maintain calibration records for at least 3 years.

D. Laboratory Accreditation

The Permittee must ensure that all monitoring data required by Ecology is prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, Accreditation of Environmental Laboratories. Flow, precipitation, discharge duration, discharge volume, and temperature are exempt from this requirement.

**S3. REPORTING AND RECORDING REQUIREMENTS**

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Monthly CSO Discharge Monitoring Report

The first monitoring period begins on the effective date of the permit. The Permittee must:

1. Submit CSO monitoring results each month.
2. Summarize, report, and submit electronically all event-based monitoring data obtained during each monitoring period via webDMR, and on a CSO Report Form approved by Ecology.
3. The monthly reports must include an event-based summary of discharge volume, duration, and weather information (precipitation and storm duration) for all CSO discharge event(s) that occurred during the reporting period.

4. Submit DMR forms monthly whether or not the Permittee had a CSO event. If there was no CSO during a given monitoring period, submit the report as required indicating that "NO COMBINED SEWER OVERFLOW" occurred during the monitoring period.
5. For any automatic flow monitoring equipment that is installed but non-operational during the reporting month, the Permittee must identify the duration of the outage and whether or not it is likely that a discharge occurred during the non-operational period.
6. Ensure that monitoring forms are date stamped or received by Ecology no later than the 28<sup>th</sup> day of the month following the completed monitoring period, unless otherwise specified in this permit.
7. Send report(s) to Ecology at:

Department of Ecology  
Attn: PARIS Coordinator  
Water Quality Program  
Northwest Regional Office  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452  
[Csmi461@ecy.wa.gov](mailto:Csmi461@ecy.wa.gov)

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must include information on the chain of custody, the analytical method, Quality Assurance (QA)/Quality Control (QC) results, and documentation of accreditation for the parameter.

**B. Records Retention**

The Permittee must retain records of all monitoring information for the duration of the permit. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

**C. Recording of Results**

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.
2. The individual who performed the sampling or measurement.
3. The dates the analyses were performed.
4. The individual who performed the analyses.
5. The analytical techniques or methods used.
6. The results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

- a. Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.
- b. If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within thirty (30) days of sampling.

1. *Immediate Reporting*

Spills and sanitary sewer overflows (i.e. overflows from the collection system upstream of a permitted CSO outfall) that reach waters of the state are prohibited. The Permittee must report any spills or sanitary sewer overflows within 24 hours from the time the Permittee becomes aware of the incident to the Department of Ecology's Regional Office 24-hour number listed below:

Northwest Regional Office                      425-649-7000

The Permittee must report any spills or sanitary sewer overflows which may reach surface waters discharging to a shellfish area immediately to the Department of Ecology and the Department of Health, Shellfish Program at the numbers listed below:

Northwest Regional Office                      425-649-7000

Department of Health, Shellfish Program    360-236-3330 (business hours)  
360-786-4183 (24 hours)

2. *Report within Five Days*

The Permittee must also provide a written submission within five (5) days of the time that the Permittee becomes aware of any event required to be reported under subparts 1, above. The written submission must contain:

- a. A description of the noncompliance and its cause.
- b. The period of noncompliance, including exact dates and times.
- c. The estimated time noncompliance is expected to continue if it has not been corrected.
- d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- e. If the noncompliance involves an overflow, an estimate of the quantity (in gallons) of untreated overflow.

3. *Reporting – Dry Weather Overflows*

Dry weather overflows (i.e. overflows from permitted CSO outfalls during periods of non-precipitation) are prohibited. All dry weather overflows from CSO outfalls shall be reported to the Department of Ecology's 24-hour Environmental Incident Report Tracking (ERTS)<sup>2</sup> phone number at (425) 649-7000 as soon as the Permittee becomes aware of the dry weather overflow, but no later than 24 hours after becoming aware of the overflow. Submit a detailed, written report to Ecology within five (5) days as required under S3.E.2, unless requested earlier by Ecology.

Corrective actions shall commence immediately and continue until the dry weather overflow has been eliminated.

4. *Reporting – Unauthorized Discharges to Shellfish Areas*

Unauthorized discharges to known shellfish areas, such as combined sewer system dry weather overflows, shall be reported within 24 hours from the time the Permittee becomes aware of the overflow to the Department of Ecology and the Department of Health, Shellfish Program. The Department of Ecology's Northwest Regional Office 24-hour number is (425) 649-7000, and the Department of Health's Shellfish Program 24-hour number is (360) 236-3330.

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<sup>2</sup> On-line ERTS form is available at [http://www.ecy.wa.gov/programs/spills/forms/nerts\\_online/NWRO\\_nerts\\_online.html](http://www.ecy.wa.gov/programs/spills/forms/nerts_online/NWRO_nerts_online.html) for use during normal business hours Monday-Friday, 8:00 am to 5:00 pm.

5. *All Other Permit Violations Reporting*

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in paragraph E.2, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

6. *Report Submittal*

The Permittee must submit permit violations written reports to:

Seattle Public Utilities Permit Manager  
Department of Ecology  
Water Quality Program  
3190 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

F. Other Reporting

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and Chapter 173-303-145. You can obtain further instructions at the following website:

<http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm>.

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

G. Maintaining a Copy of This Permit

The Permittee must keep a copy of this permit at their office and make it available upon request to Ecology inspectors.

**S4. OPERATION AND MAINTENANCE**

The Permittee must at all times properly operate and maintain all facilities and systems of conveyance and control (and related appurtenances) that are installed to achieve compliance with the terms and conditions of this permit. This provision of the permit requires the Permittee to operate backup or auxiliary facilities or similar systems only when the operation is necessary to achieve compliance with the conditions of this permit.



A. O & M Program

The Permittee must:

1. Institute an adequate Operation and Maintenance Program for the entire combined sewage system.
2. Keep maintenance records on all major electrical and mechanical components of the combined sewage system, including its pumping stations. Such records must clearly specify the frequency and type of maintenance recommended by the manufacturer or a site-specific reliability-centered maintenance analysis and must show the frequency and type of maintenance performed.
3. Make maintenance records available for inspection at all times.

B. Short-term Reduction

If a Permittee contemplates a reduction in the level of operation and/or maintenance that would cause a violation on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee must:

1. Give written notification to Ecology, if possible, thirty (30) days prior to such activities.
2. Detail the reasons for, length of time of, and the potential effects of the reduced level of operation and/or monitoring.

This notification does not relieve the Permittee of its obligations under this permit. The Permittee must attempt to minimize the duration of short-term reductions and must attempt to restrict short-term reductions to dry weather periods.

C. Electrical Power Failure

The Permittee must ensure that adequate safeguards prevent the discharge of untreated wastes or wastes not conveyed in accordance with the requirements of this permit during electrical power failure at sewage lift stations. Adequate safeguards include, but are not limited to, alternate power sources, standby generator(s), or retention of inadequately treated wastes, bypass pumping (for example, pumping of combined sewer flows with a means other than the pump station's pumps), or other equally protective means.

D. Prevent Connection of Inflow

The Permittee must strictly enforce its sewer ordinances and not allow the connection of inflow sources (roof drains, foundation drains, etc.) to the sanitary sewer system.

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Hon. William L. Dwyer

FILED ENTERED  
RECEIVED  
OCT 13 1999 MR

BY DEPUTY  
WESTERN DISTRICT OF WASHINGTON

CC: TO JUDGE  
FILED  
LODGED  
ENTERED  
RECEIVED

OCT 13 1999

UNITED STATES DISTRICT COURT  
WESTERN DISTRICT OF WASHINGTON  
AT SEATTLE

AT SEATTLE  
CLERK U.S. DISTRICT COURT  
WESTERN DISTRICT OF WASHINGTON  
DEPUTY

UNITED STATES OF AMERICA,  
et al.,

Plaintiffs,

v.

THE CITY OF SEATTLE, and  
MUNICIPALITY OF METROPOLITAN  
SEATTLE,

Defendants.

NO. C90-395WD  
AMENDED  
CONSENT DECREE

CONSENT DECREE

This Consent Decree is made and entered into by and between the United States of America, the State of Washington, the Suquamish Indian Tribe, the Muckleshoot Indian Tribe, the City of Seattle ("City") and the Municipality of Metropolitan Seattle ("Metro").

INTRODUCTION

The parties to this Consent Decree agree that settlement of the claims in this case against defendants the City and Metro is

CONSENT DECREE - 1

U.S. Department of Justice  
Environmental Enforcement Section  
c/o GC-DOJ DARC  
7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

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1 fair, adequate, reasonable, equitable and in the public interest  
2 and is made in good faith and after arms-length negotiations, and  
3 that entry of this Consent Decree is the most appropriate means  
4 to resolve the matters covered herein.

5 RECITALS

6 A. The Department of Commerce acting through the National  
7 Oceanic and Atmospheric Administration ("NOAA"), the United  
8 States Department of the Interior ("Interior"), the Washington  
9 Department of Ecology ("Ecology"), the Muckleshoot Indian Tribe,  
10 and the Suquamish Indian Tribe have been designated pursuant to  
11 Section 107(f) of the Comprehensive Environmental Response,  
12 Compensation, and Liability Act of 1980, as amended ("CERCLA"),  
13 42 U.S.C. Section 9607(f), and 40 C.F.R. Part 300, subpart G, to  
14 act on behalf of the public as trustees for natural resources for  
15 the assessment and recovery of damages for injury to, destruction  
16 of, or loss of natural resources under their trusteeships.

17 B. Metro, pursuant to statutory authority, is responsible  
18 for the construction, operation, and maintenance of trunk sewer  
19 lines, pumping facilities, and treatment plants serving over one  
20 million people including many industries and commercial  
21 enterprises in the greater Seattle area. Metro treats  
22 approximately 180 million gallons of wastewater per day at its  
23 five wastewater treatment plants, and discharges the treated  
24 effluent from a system of outfall pipes extending into Puget  
25 Sound. As a part of that system, combined sewer overflows

1 ("CSOs") are located on and discharge to Elliott Bay and the  
2 Duwamish River to handle extraordinary flows of storm water into  
3 the system. Effective January 1, 1994, by the operation of law  
4 the Municipality of Metropolitan Seattle (Metro) was consolidated  
5 into King County, a home rule charter county of the State of  
6 Washington. For a two-year transition period the functions  
7 formerly performed by the Municipality of Metropolitan Seattle  
8 were performed by King County through the Department of  
9 Metropolitan Services. As of January 1, 1996, the metropolitan  
10 water pollution control function formerly performed by Metro is  
11 now performed by King County through its Department of Natural  
12 Resources. Provisions herein regarding the rights and  
13 obligations of Metro should be read to refer to King County.

14 C. The City, pursuant to statutory authority, owns and  
15 maintains a basic collector sewer system which feeds into the  
16 Metro trunk sewer lines, and also owns and maintains a storm  
17 water system. The City pays Metro for sewage transmission,  
18 treatment, and disposal services. As part of the sewer and storm  
19 water systems, the City owns and maintains certain CSOs and storm  
20 water outfalls that discharge to Elliott Bay and the Duwamish  
21 River.

22 D. The United States on behalf of NOAA filed a complaint  
23 in this action on March 19, 1990, under Section 107 of CERCLA, 42  
24 U.S.C. § 9607(a), seeking, inter alia, recovery from Metro and  
25 the City for damages for injury to, destruction of, and loss of

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28 CONSENT DECREE - 3

U.S. Department of Justice  
Environmental Enforcement Section  
c/o GC-DOJ DARC  
7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

1 natural resources resulting from releases of hazardous  
2 substances, in particular chromium, cadmium, copper, lead, zinc,  
3 pentachlorophenols (PCPs), polychlorinated biphenyls (PCBs),  
4 polycyclic aromatic hydrocarbons (PAHs), and halogenated  
5 hydrocarbons, into the environment in and around the Duwamish  
6 River and Elliott Bay, for the costs of restoring, replacing or  
7 acquiring the equivalent of the affected natural resources, and  
8 for the costs of assessing the damage to the affected natural  
9 resources.

10 E. The United States has alleged in its complaint in this  
11 matter, prior to conducting a natural resource damage assessment  
12 pursuant to 43 C.F.R. Part 11, that Metro and the City have  
13 released hazardous substances into the environment, with  
14 attendant injury to the United States' trust resources, and that  
15 mitigation and remediation of substances Metro and the City are  
16 alleged to have released would facilitate the recovery of such  
17 resources.

18 F. Metro and the City maintain that effluent discharged  
19 from their CSOs and storm water outfalls has presented little if  
20 any potential for injury to the natural resources in Elliott Bay  
21 and the Duwamish River; that their wastewater collection,  
22 treatment and disposal programs have contributed substantially to  
23 decreasing and/or minimizing injury and damage to natural  
24 resources; that their water quality programs have made  
25 improvements in the water quality of Elliott Bay and the Duwamish

1 River; that their pretreatment programs, along with on-site  
2 monitoring, keep the contribution of industrial sources within  
3 permitted discharge limits; and that the limited natural resource  
4 damage from the CSOs and the storm water outfalls appears to have  
5 originated equally from industrial, commercial, and residential  
6 customers that discharge into the City and Metro systems.

7 G. Without admission or adjudication of any fact or issue  
8 of law in this matter, except as between the United States, Metro  
9 and the City as to the running of the statutes of limitation and  
10 to certain interpretations of Section 13 of the Rivers and  
11 Harbors Act, 33 U.S.C. § 407, in settlement of this action Metro  
12 and the City have agreed to participate in a cooperative program  
13 of restoration and replacement of natural resources in Elliott  
14 Bay and the Duwamish River. In addition to the provision of  
15 expertise through the contribution of in-kind services, Metro and  
16 the City have agreed to provide funding for the operation of the  
17 Panel (as defined below), the evaluation of natural resource  
18 damages, the selection, design, and implementation of sediment  
19 remediation and habitat development projects, and the  
20 modification of planned source control programs.

21 H. This Decree contains terms embodying a cooperative  
22 partnership among the United States, Metro, the City, the State  
23 of Washington, the Muckleshoot Indian Tribe, and the Suquamish  
24 Indian Tribe that will make improvements in Elliott Bay and the  
25 Duwamish River and will allow these parties to make progress in

1 restoring and replacing damaged natural resources in the covered  
2 area, as defined below.

3 I. Scientific research conducted on natural resources in  
4 Elliott Bay and the Duwamish River indicates that the effects of  
5 many urban and industrial activities, including CSOs and storm  
6 water discharges, have contributed to the injury identified in  
7 these studies. Based on this research, the parties have agreed  
8 that, as to Metro and the City, no further natural resource  
9 damage assessment is required to effectuate the purposes of this  
10 Decree.

11 J. The programs and projects conducted pursuant to this  
12 Decree standing alone are not intended, nor could they be  
13 expected, to remedy all of the losses of or injuries to natural  
14 resources in Elliott Bay and the Duwamish River. The parties  
15 recognize the importance of dealing with the programs under this  
16 Decree in a comprehensive manner and of coordinating the  
17 activities undertaken pursuant to this Decree with actions by  
18 these and other parties in the Elliott Bay and Duwamish River  
19 area to maximize the benefits to the natural resources, as well  
20 as the residents, of the area. This includes coordinating  
21 ongoing Metro and City programs with efforts to maintain habitat  
22 development projects established pursuant to this Decree.

23 K. The parties understand that the source control,  
24 sediment remediation and habitat development efforts undertaken  
25 pursuant to this Decree are not intended to substitute for any

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28 CONSENT DECREE - 6

U.S. Department of Justice  
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1 EFFECTIVE DATE

2 55. This Consent Decree shall be effective upon the date of  
3 its entry by the Court.

4 DENIAL OF LIABILITY

5 56. Metro and the City both deny each of the allegations of  
6 the complaint filed by the United States and further deny  
7 responsibility for the natural resources damages and any other  
8 costs or relief sought by the Trustees. The parties agree that  
9 actions undertaken by the City and Metro in accordance with this  
10 Consent Decree do not constitute an admission of any violation of  
11 treaty, federal or state law or an admission of any liability by  
12 the City or Metro to the United States, the State of Washington,  
13 the Suquamish Indian Tribe and Muckleshoot Indian Tribe. Nor  
14 shall this Consent Decree be used as evidence or as collateral  
15 estoppel against any party to this Decree in any action or  
16 proceeding other than an action or proceeding to enforce the  
17 terms of this Consent Decree.

18 RETENTION OF JURISDICTION

19 57. The Court shall retain jurisdiction of this matter for  
20 purposes of entering such further orders, direction, or relief as  
21 may be appropriate for the construction, implementation, or  
22 enforcement of this Decree.

23 58. By signature below, all parties consent to this  
24 Decree.

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28 CONSENT DECREE - 41

U.S. Department of Justice  
Environmental Enforcement Section  
c/o GC-DOJ DARC  
7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

For King County

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Pam Bissonette

Pam Bissonette  
Director  
King County Department of Natural Resources  
400 Yesler Way, Room 700  
Seattle, WA 98104

4/26/99  
Date

CONSENT DECREE - 42

U.S. Department of Justice  
Environmental Enforcement Section  
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7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

1 FOR THE CITY OF SEATTLE

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28 CONSENT DECREE - 43

*Mark H. Sidran*  
Mark H. Sidran  
City Attorney  
City of Seattle  
Municipal Building, 10th Floor  
600 Fourth Avenue  
Seattle, Washington 98104

Date

*April 19, 1999*

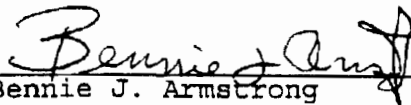
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7600 Sand Point Way N.E.  
Seattle, Washington 98115-0070

1 FOR THE SUQUAMISH INDIAN TRIBE

2

3

4



Bennie J. Armstrong  
Chairman

24 May 1999  
Date

5

Suquamish Tribal Council  
15838 Sandyhook Road

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P.O. Box 498

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Suquamish, Washington 98392

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28 CONSENT DECREE - 44

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1 FOR THE MUCKLESHOOT INDIAN TRIBE

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3

4

*John Daniels, Jr.*  
John Daniels, Jr.  
Chairman

*9/23/99*  
Date

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Muckleshoot Indian Tribe  
39015 172nd Avenue S.E.  
Auburn, Washington 98002

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CONSENT DECREE - 45

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c/o OC-DOJ DARC  
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Seattle, Washington 98115-0070

1 FOR THE STATE OF WASHINGTON

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3

4



4/23/99

Date

5 Jim Pendowski  
6 Program Manager  
7 Toxics Cleanup Program  
8 Washington Department of Ecology  
9 P.O. Box 47600  
10 Olympia, Washington 98504-7600

8

9

10



4/19/99

Date

11 Tanya Barnett  
12 Assistant Attorney General  
13 Attorney General of Washington  
14 Ecology Division  
15 629 Woodland Square Loop SE, Lacey  
16 P.O. Box 40117  
17 Olympia, Washington 98504-0117

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CONSENT DECREE - 46

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Seattle, Washington 98115-0070

1 FOR THE UNITED STATES OF AMERICA

2  
3 *L. J. Schiffer*  
4 Lois J. Schiffer  
5 Assistant Attorney General  
6 Environment and Natural Resources Division  
7 U.S. Department of Justice  
8 Washington, D.C. 20530

9/16/99  
Date

9 *J. L. Nicoll*  
10 James L. Nicoll  
11 Senior Attorney  
12 Environmental Enforcement Section  
13 Environment and Natural Resources Division  
14 U.S. Department of Justice  
15 c/o NOAA GC/DOJ Damage Assessment Center  
16 7600 Sand Point Way N.E.  
17 Seattle, Washington 98115-0070

10/7/99  
Date

18 *Brian C. Kipnis*  
19 Brian C. Kipnis  
20 Assistant United States Attorney  
21 3600 SeaFirst Fifth Avenue Plaza  
22 800 Fifth Avenue  
23 Seattle, Washington 98104

10/7/99  
Date

24 *So ordered.*

25 *Oct. 13, 1999.*


26 *William L. Kuyper*  
27 *U.S. District Judge*

28 CONSENT DECREE - 47

U.S. Department of Justice  
Environmental Enforcement Section  
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39





# **Comprehensive Plan to Reduce Polychlorinated Biphenyls (PCBs) in the Spokane River**

**Tech**

Water | Scientists  
Environment | Engineers



501 Avis Drive  
Ann Arbor, MI 48108  
734.332.1200  
[www.limno.com](http://www.limno.com)

## **Comprehensive Plan to Reduce Polychlorinated Biphenyls (PCBs) in the Spokane River**

**Prepared for:  
Spokane River Regional Toxics Task Force**

**November 29, 2016**

and Idaho (<http://www.deq.idaho.gov/waste-mgmt-remediation/hazardous-waste/electronic-waste/>) also support programs to recycle electronic waste, which could address PCBs in small capacitors.

### 5.9.2 New Actions

The Task Force will provide additional support to existing Waste Disposal Assistance efforts as follows:

- Provide recommendation to implementing organizations on how they can better control PCB-containing wastes
- Raise public awareness on how to identify and dispose of PCB-containing items

## 5.10 Category B: Regulatory Rulemaking

This Control Action consists of regulatory reform of Federal TSCA and FDA's food packaging regulations to: 1) revisit currently allowed concentration of PCBs in chemical processes; 2) eliminate or reduce the creation of inadvertently generated PCBs; and 3) reassess the current use authorizations for PCBs.

### 5.10.1 Existing Actions

The Task Force and individual members have had continuing engagement with State and federal agencies to lobby for reform of existing regulations, including providing evaluation and comment on rulemaking activities.

### 5.10.2 New Actions

Paint manufacturers providing road paint to transportation agencies are currently required to use pigments compliant with a strictly controlled "color box." These color box requirements can only be met through the use of PCB-containing diarylide pigments. The Task Force will seek to attain State/federal level changes to color box requirements for road paints, allowing the use of PCB-free (or essentially PCB-free) pigments in these paints.

## 5.11 Category B: Compliance with PCB Regulations

This Control Action consists of requiring stricter accountability for compliance with existing rules. Potential activities include enforcement of existing TSCA rules to ensure imported and manufactured products are complying with allowable PCB levels, and enforcement of rules related to used oil burning.

### 5.11.1 Existing Actions

The Task Force and individual members have had continuing engagement with State and federal agencies providing comments related to draft NPDES permits (e.g., the recent general hatchery permit), Clean Water Act compliance activities, and waterbody assessments such as 303(d) lists.

### 5.11.2 New Actions

Ecology's Environmental Assessment Program (Ecology, 2016c) is currently undertaking a study that will provide information on atmospheric transport of PCBs. The Task Force will review results of this study when it becomes available to assess the need for regulatory control of atmospheric PCB sources such as used oil burning.

## 5.12 Category B: Emerging End of Pipe Stormwater Technologies

While many options currently exist for controlling stormwater PCB loads, they typically focus on activities to capture PCBs, but not destroy them. Newer technologies, such as mycoremediation, are being investigated that could lead to actual PCB destruction.

### 5.12.1 Existing Actions:

The Lands Council has begun an innovative mycology project that uses a native species of fungi, called white rot fungi, to break down persistent PCBs from stormwater. Because PCBs are chemically similar to the wood that these fungi naturally eat, the fungi can break down these chemicals without experiencing toxic effects. White rot fungi have been shown to break down PCBs under laboratory conditions, and The Lands Council is seeking to test this utility on a much larger scale in the field to identify the potential for WRF to be used to prevent PCBs from entering the Spokane River. If successful, this novel method could have broad implications for cost-effective cleanup at contaminated sites. The Lands Council currently has a contract with the City of Spokane for an initial mycoremediation experiment, which is looking at 'fungal treatment' of vector waste on a small scale. This experiment is ongoing, with results expected in early spring of 2017.

### 5.12.2 New Actions:

The existing experiment could be considered Phase 1 of a larger study. Specific activities to be conducted in upcoming phases will depend upon results of Phase 1. The Task Force will review Phase 1 findings and identify and/or support additional phases of research projects that meet Task Force goals. The specific nature of this support will be determined after Phase 1, and could include identification of grant opportunities, support to the Lands Council of pursuit of these grant opportunities, and/or other funding.

## 5.13 Category C: Building Demolition and Renovation Control

Category C Control Actions consist of new actions. The first Category C Control Action corresponds to building demolition and renovation control. Fixed building sources have been identified as one of the largest source areas of PCBs in the Spokane watershed. Building demolition and renovation activities provide the potential to mobilize these fixed PCBs, making them more amenable to transport to the Spokane River. This Control Action consists of providing educational materials that inform contractors of proper methods of management of PCB-containing materials and waste during building demolition and renovation.

The San Francisco Estuary Institute (SFEI) conducted a study to estimate the total content of PCBs in caulk in buildings throughout the Bay Area and the potential load of PCBs from demolition and remodeling sources to San Francisco Bay (Klosterhaus et al., 2011). A companion project was led by the San Francisco Estuary Project (SFEP) and focused on how to reduce this load of PCBs (SFEP, 2011). They developed descriptions of several different management practices for managing PCBs in caulk during building demolition or remodeling, related to:

- Building Occupant Notification: communication of health and safety goals prior to beginning a project
- Worker Training: proper identification, handling and disposal of PCB-contaminated materials
- Personal Protective Equipment (PPE): protection of human health and limit the spread of contaminated materials
- Work Area Containment: prevention of the spread of contaminated dust
- Tools and Equipment: selection of appropriate tools that minimize dust generation

- Demolition: includes dust management, discharge of wastewater, and removal of other hazardous materials
- Site Erosion and Sediment Controls
- Work Area Housekeeping and End of Project
- Transport and Disposal

### 5.13.1 Actions

The specific actions to be implemented by the Task Force relative to Building Demolition and Renovation Control are:

1. Adapt the SFEP document to make it suitable for use as a guidance document for Spokane-area building contractors.
2. Work with relevant local government agencies responsible for permitting to ensure that the guidance document be distributed as part of all building permits related to building demolition and renovation.

## 5.14 Category C: Identification of Sites of Concern for Contaminated Groundwater

As discussed above in the section Remediate Known Contaminated Sites, Ecology has identified and initiated remediation activities on several sites believed to be contributing PCBs to the Spokane River. Activities conducted on behalf of the Task Force have identified the potential for additional sites of potential concern; specifically:

- Assessment of groundwater PCB data collected up-gradient of the known Kaiser groundwater contamination indicates the potential for a significant groundwater loading source independent of the Kaiser remediation ([LimnoTech, 2016f](#))
- Homolog-specific mass balance analyses conducted with the 2015 and 2016 synoptic river survey data indicate the potential presence of a groundwater PCB loading source entering the river downstream of the Trent Avenue Bridge ([LimnoTech, 2016d](#)).
- Cleanup targets for many TCP sites are based on levels necessary to protect groundwater as a drinking water supply (adjusted for the Practical Quantitation Limit), and are not necessarily protective of river water quality standards. For example, the groundwater cleanup target concentration at the City Parcel and GE sites (0.1 ug/L) is approximately 600 times higher than the river water quality standard of 170 pg/l. Given that sites that have received No Further Action (NFA) designation may still contain groundwater PCB concentrations orders of magnitude higher than safe river concentrations, these sites have the potential to contribute to water quality standard violations in the Spokane River. Marti and Maggi ([2015](#)) identified 23 TCP sites with confirmed releases of PCBs to soil and/or groundwater that may merit further investigation in terms of potential to contribute problematic levels of PCBs to the Spokane River. There is also an EPA Superfund site consisting of a former oil recycling facility in Kootenai County, Idaho, near Rathdrum, where PCBs were a contaminant. Post-removal (1991) concentrations of PCBs (Aroclor 1260) in surface soil samples were generally non-detect, but there was one detection at 0.075 mg/kg.

Because these additional sites have the potential to cause or contribute to PCB impairment of the Spokane River, it is important to: 1) Determine whether they have the potential to be significant contributors of PCBs, and 2) Develop a plan for additional follow-up actions related to any source determined to be a potential contributor.

40

Health

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# Another sewage spill fouls Puget Sound, this time in West Seattle

Originally published February 17, 2017 at 12:22 pm | Updated February 17, 2017 at 9:13 pm

Puget Sound was hit with another spill of untreated wastewater, this time from a King County pump station.

By Lynda V. Mapes

*Seattle Times environment reporter*

Puget Sound took another hit of untreated wastewater Thursday.

A King County wastewater pump station in West Seattle switched off for 25 minutes during a neighborhood power outage, sending 330,000 gallons of stormwater and raw sewage into Puget Sound.

The 63rd Avenue Pump Station is supposed to send wastewater to an Alki facility for containment until it can be treated.

But instead the power outage, from 4:45 to 5:05 p.m., knocked out the plant. Crews brought over an emergency generator stored at the Alki Station. By that time, power was restored.

## Related

The spill was on top of millions of gallons of

untreated wastewater bypassed into Puget Sound beginning Feb. 9, after a catastrophic flood at the West Point Treatment plant at Discovery Park in Magnolia.

The flood caused tens of millions of dollars in damage at the plant, which treats sewage from 1.7 million people in the Seattle region and will take many weeks to repair, according to King County wastewater officials.

The damage occurred when a pump station at the plant failed. The cause for the failure is not yet known.

Beaches at Discovery Park are closed, with no date yet for reopening, because of the risk to public health from raw sewage pumped from the plant into the Sound.

The plant sent 260 million gallons of untreated flows to Puget Sound beginning early in the morning Feb. 9 and stopped about 19 hours later, said Doug Williams, spokesman for the county.

Dumping of untreated flows began again about 3:30 a.m. Wednesday because of the wet weather and lasted until about 10:30 a.m., spilling an estimated 6 million to 10 million more gallons of untreated



Officials say damage to sewage plant in Discovery Park is catastrophic

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effluent into Puget Sound from an emergency overflow pipe 35 feet below the surface, nearly 500 feet offshore. Most of the effluent is stormwater, but about 10 percent is raw sewage.

The emergency overflows resumed from 4 p.m. Wednesday and continued overnight until about 6:30 a.m. Thursday, when heavy rain resumed. Totals from that bypass event had not yet been calculated.

*Lynda V. Mapes: 206-464-2515 or [lmapes@seattletimes.com](mailto:lmapes@seattletimes.com)*

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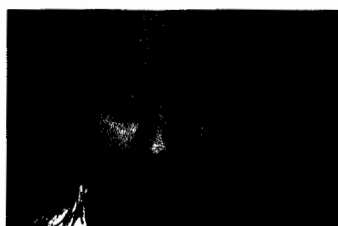
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# Officials say damage to sewage plant in Discovery Park is catastrophic

Originally published February 16, 2017 at 12:27 pm | Updated March 7, 2017 at 3:10 pm



**1 of 2** *Mark Isaacson with King County West Point Treatment Plant said "This is a major catastrophe" He's in the basement of the West Point Treatment Plant that was totally submerged in 12-feet of water. (Greg Gilbert/The Seattle Times)*



regular  
g County's  
wastewater-treatment division.

By Lynda V. Mapes

*Seattle Times environment reporter*

King County has stopped dumping raw sewage into Puget Sound from its crippled West Point treatment plant for now — but the county will likely start dumping again when rainy weather returns.

The plant, which treats sewage from 1.7 million people around the Seattle region, suffered catastrophic damage on Feb. 9 and will not resume regular service for many weeks, according to Mark Isaacson, director of the King County's wastewater-treatment division.

Beaches at Discovery Park are closed, with no date yet for reopening, because of the risk to public health from raw sewage pumped from the plant into the Sound. "We are here for the health of the environment, and for public health, and right now, we are compromising that," said Isaacson.

The trouble started when the pump station that sends treated wastewater out of the plant failed, according to a letter from plant managers sent Wednesday to King County's regulators.

Staff on duty about 2:15 a.m., Feb. 9, worked to reduce the incoming flow while attempting — unsuccessfully — to restart the 2,250-horsepower motors on the pumps. As water levels in the plant continued to rise, staff next worked to manually intervene to stop pumps bringing more incoming flow.

That caused the upstream levels of sewage entering the plant to rise, triggering an emergency bypass gate to automatically open. That diverts raw sewage away from the plant and into an emergency outfall pipe to Puget Sound, as a desperate measure to save the plant.

By then the plant was already flooded, with a barrage of some 15 million gallons of water barreling through it, powerful enough to buckle and break down 25-foot-high garage doors, mangle equipment and leave a fur of untreated sewage 12 feet up the walls. Cavernous rooms filled with pumps and other equipment were flooded to the ceiling and steeped in muck.

“Water is impatient,” said operations and maintenance section manager Robert Waddle. “And the water won.”

Tens of millions of dollars of equipment, including more than 200 motors and more than 100 electrical panels, were destroyed. An uncounted number of pumps have to be taken apart, cleaned and repaired. Industrial-scale boilers, used in the

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treatment process, need to be replaced.

Since the flood, hazardous-materials crews have been steam-cleaning the plant, and electricians have been working their way, room by room, to make them safe to enter after water swamped the electric circuitry.

Next comes the slow process of cleaning and replacement and repair of motors, pumps, and electrical wiring and panels, expected to take many weeks.

King County has a \$250 million insurance policy that is expected to cover the cost.

Isaacson, during a tour of the plant with reporters Thursday afternoon, said the event was catastrophic. It's so damaging that the plant, which turned 50 years old this year, cannot perform secondary treatment that is required by its wastewater permit. That puts the county out of compliance with state regulators and facing possible fines.

The plant normally provides intensive treatment of up to 450 million gallons per day of sewage, wastewater and stormwater.

But right now, the plant is limping along at half capacity and is treating stormwater and raw sewage flowing to the plant with primary treatment only. That means solids are screened and settled out, and the rest is disinfected with chlorine, then dechlorinated before discharging the water offshore of the beach at West Point to Puget Sound.

Worse, when rain swells the amount of water entering the system because of stormwater from roads, roofs and other hard surfaces, the plant, operating at reduced capacity, bypasses what it can't shed to other plants for treatment and sends it directly to Puget Sound.

Environmentally, untreated flows cause temporarily elevated levels of bacteria in some areas, spot tests by the Wastewater Treatment Division show. Currents dissipate the pollution. Large amounts of stormwater in the effluent also mean the sewage is greatly diluted.

The plant bypassed 260 million gallons of untreated flows to Puget Sound beginning early in the morning Feb. 9 and stopped about 19 hours later, said Doug Williams, spokesman for the county.

Dumping of untreated flows began again about 3:30 a.m. Wednesday because of the wet weather and lasted until about 10:30 a.m., spilling an estimated six to 10 more million gallons of untreated effluent into Puget Sound from an emergency overflow pipe 35 feet below the surface, nearly 500 feet offshore. Most of the effluent is stormwater, but about 10 percent is raw sewage.

The emergency overflows resumed from 4 p.m. Wednesday and continued overnight until about 6:30 a.m. Thursday, when heavy rain resumed. Totals from that bypass event had not yet been calculated.

The county has notified its regulators at the state Department of Ecology and Department of Health of the situation, and has also informed tribes with treaty-fishing rights.

The trouble comes just as the region is experiencing record heavy rains that are expected to continue into the middle of next week. That is sure to mean more raw sewage bypassed to Puget Sound.

Isaacson said right now the county's top priorities are worker safety and getting the plant back in working order. Still to come is what he promised would be a "deep dive" to figure out exactly what went wrong. "We owe that to ourselves and to the region. We are going to learn from this."

King County operates a far-flung and diverse network of pipes, vaults and treatment plants from large, regional facilities, such as Brightwater and West Point, that collect and treat flows from local sewer agencies to a community septic system on Vashon Island.

The county's Wastewater Treatment Division serves about 1.7 million people within a 424-square-mile service area, which includes most urban areas of King County and parts of south Snohomish County and northeast Pierce County.

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# Damage to West Point treatment plant could top \$25 million

Originally published February 27, 2017 at 9:40 am | Updated March 7, 2017 at 3:10 pm



*Workers construct a temporary ventilation system outside of a digester structure at the West Point Treatment Plant on Wednesday. (Johnny Andrews/The Seattle Times)*

King County is still investigating, but it appears that a power surge might have



By Lynda V. Mapes

*Seattle Times environmental reporter*

Damage to the crippled West Point wastewater-treatment plant in Seattle could cost more than \$25 million to repair and might have happened after a power surge knocked out two pumps, resulting in major flooding, according to new details from King County.

The cost and possible cause are all part of an ongoing investigation yet to nail down the extent of damage or the source of the trouble.

The details were spelled out by King County with its insurer, whom the county asked on Feb. 24 to wire \$10 million for repairs. So far, the insurer has released \$5 million, but it may hand over \$25 million as soon as this week as the company receives more information from King County on the extent of the damage.

The county is also discussing coverage for losses potentially far higher.

**Related story**

To speed repairs, the Metropolitan King

County Council, on a 9-0 vote Monday, passed legislation to allow contracting to fix the plant without the usual competitive-bidding requirements.

Mark Isaacson, director of the King County wastewater division, said the waiver, good through May 2018, removes a hurdle that can add three to six months to the procurement process.

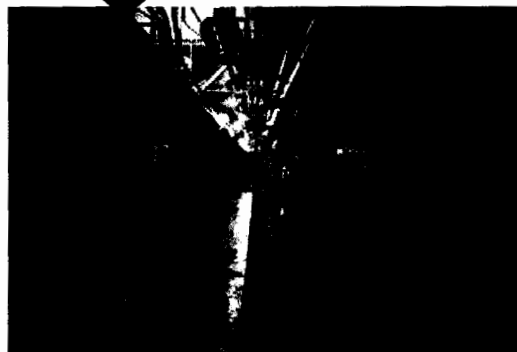
He promised a root-cause analysis of the plant flooding but said right now the first priority is employee safety and getting the plant back to normal operation.

Early understanding already emerging includes problems with the power supply to pumps that carry effluent from the plant, as well as level-limit switches on raw-sewage pumps that did not activate.

The flooding that crippled the plant occurred during a 10-minute period as sewage and wastewater continued to pour in while workers were trying to start the failed pumps.

A separate emergency gate eventually triggered automatically, shutting down further flow. But by then the damage was done.

On the bidding waiver, Councilmember Kathy Lambert offered an amendment that



After the flood: cleaning up at West Point treatment plant

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imposed the May 2018 sunset, as well as reporting requirements to the council. The wastewater-treatment division had asked for the waiver through August 2018.

Lambert said she also wants to know why backup systems at the plant apparently failed. "I have a lot of questions," she said.

Councilmember Rod Dembowski said it is imperative to speed ahead with repairs.

"It's an environmental catastrophe every day it is not up and running," he said of the plant. "I hate to say that, but it's true."

A council subcommittee meets in a public session at 3 p.m. Wednesday for a briefing by King County Wastewater on the flood at the plant.

The flood of wastewater in the plant occurred at 2:30 a.m. Feb. 9, when the pumps went out just as the plant was taking in maximum flows during heavy rain and snow melt.

Areas of the plant flooded with an estimated 12 feet of raw sewage and stormwater. Thousands of pieces of equipment were destroyed in the flooding, including an estimated 200 electrical motors submerged in the polluted water.

The motors run pumps and connect switch gear and electrical panels that also must all be replaced, along with hundreds of yards of ruined insulation in hot-water piping.

An additional 20 to 25 power-distribution controls were also damaged. Also wrecked were employee lockers, including all the personal gear inside.

Cleanup began immediately after the disaster and is ongoing. The work includes pumping out the mess and power washing and steam cleaning equipment and surfaces.

Some damaged equipment will be repaired, but much of it is considered a total loss.

Costs also include trucking sludge usually treated at the plant all the way to Renton, where the county runs another regional wastewater-treatment facility.

The West Point plant is running at only half-capacity, operating well below the performance required by its state permit from the Department of Ecology.

West Point is supposed to send wastewater into Puget Sound cleaned to at least 85 percent purity. But right now wastewater is being returned to the Sound only 40 percent clean of solids — or worse.

With its reduced capacity, during high flows the plant has also shunted hundreds of millions of gallons of untreated wastewater directly to the Sound through an emergency bypass.

The plant, located near Magnolia next to Discovery Park, probably won't be back to operating normally until at least April, managers have estimated.

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# Sludge bugs: Sewage-eating microbes in peril at crippled West Point plant

*This sediment plume mixed with wastewater was photographed Feb. 16 at West Point, seven and a half hours after 58 million gallons of untreated wastewater was dumped in the water. The West Point treatment plant was disabled in a disastrous flood Feb. 9 causing the plant to release hundreds of millions of gallons of raw wastewater over the course of three events into Puget Sound. (Steve Ringman/The Seattle Times)*

Originally published March 12, 2017 at 7:30 am | Updated March 21, 2017 at 2:33 pm

A brown plume from the West Point Treatment plant shows the crippled plant's limited capacity. A key to getting it working again will be the health of a suite of microbial life that handles much of the dirty work.


Lynda V. Mapes

By

*Seattle Times environment reporter*

A mighty river of brown, raw sewage and stormwater makes a plume offshore at Discovery Park, plainly seen from the air.

It's from the West Point Treatment plant, gushing untreated wastewater into Puget Sound.

That's the way it's been for more than a month on days the region's large treatment plant can't manage high flows, after a catastrophic flood crippled it Feb. 9. So when it rains a lot, it pours  right out of the plant's emergency outfall. On three days of heavy rain last month, the plant dumped about 235 million gallons of untreated wastewater straight into the Sound, including 30 million gallons of raw sewage.

Even on ordinary days now, the plant's usual sparkling output is dingy with solids it can't cleanse — as much as 107 tons poured into Puget Sound on a single day March 3.

The plant's deep-water outfall, in fast-moving water far offshore, reduces the environmental hit. Tests show high bacteria counts after emergency bypasses quickly dissipated in the powerful currents. Beaches are back open after a brief closure right after the flood. And it's a time of year when few people are swimming and boating in the open water.

But the plant is in violation of its permit, falling far below the required standard for water treatment. The soonest it will be back in normal operation — after tens of millions of dollars in repairs — is April 30, county wastewater managers say.

And that's if they are lucky.

At stake is protection of the marine environment, already polluted and challenged by regional human impact — from development that has shaved forests and paved the lowlands and bulkheaded beaches, to oil and toxics that wash into the

### **Clarification**

A photo of a plume in the water off West Point shows sediment in the water as well as wastewater, not only stormwater and raw sewage as was described in the original photo caption and story based on information provided at the time.



sound every time it rains.

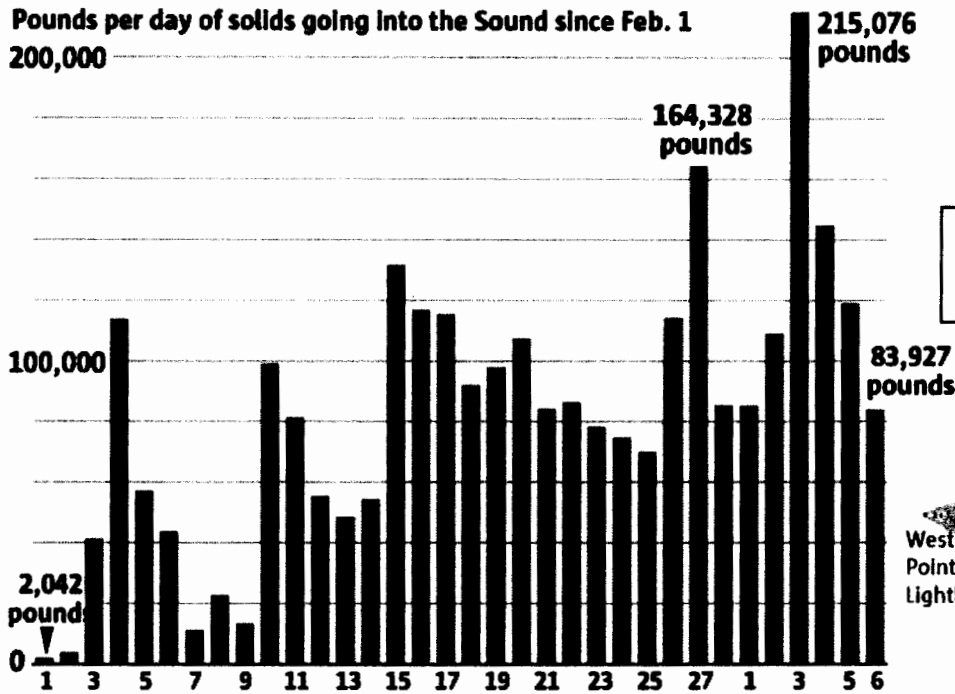
Substandard treatment at the plant also could cost the ratepayers, through possible fines from the state Department of Ecology.

## Puget Sound hit

Tons of solids are pouring into Puget Sound every day because of damage to the West Point treatment plant.

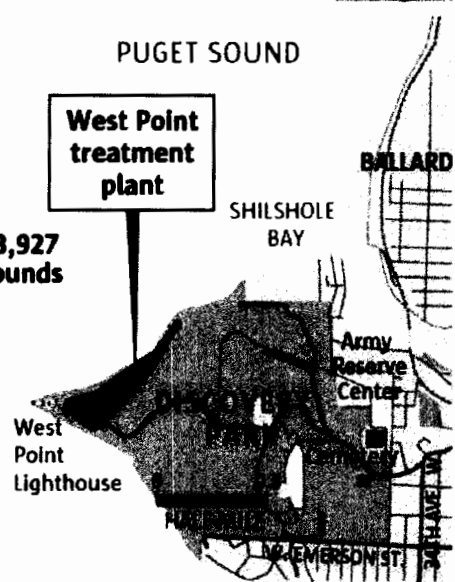
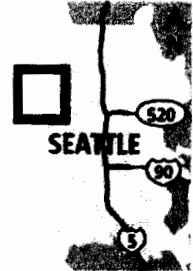
Pounds per day of solids going into the Sound since Feb. 1

200,000



Source: King County Wastewater Treatment Division

MARK NOWLIN / THE SEATTLE TIMES



At the heart of the plant's recovery are the unsung heroes of wastewater treatment at West Point: bugs.

A crawling, oozing, flagellating suite of microbial life is central to the plant's work. They reduce the volume of solids produced in the treatment process, kill harmful pathogens and bacteria, and produce methane that heats the plant and drives the pumps bringing in more raw sewage.

But right now, the bugs are suffering with little food or heat since the flood. They must be revived before the plant can be put back into normal operation.

That's not an easy task, and West Point has had problems for the past year and a half — long before the flood crippled the plant.



*Workers construct a temporary ventilation system outside a digester at the West Point treatment plant on Feb. 22. (Johnny Andrews/The Seattle Times)*

## Digester problems

The trouble is in five squat concrete towers at West Point.

These towers, called digesters, are filled with sewage sludge and bugs doing work similar to what's going on in your own gut — if they are kept toasty warm at 98.6 degrees and fed a steady diet to their liking.

But for about 18 months, something has been amiss with the digesters, which have been erupting with as much as eight feet of foaming sludge, sometimes spilling down the sides and piling up inches thick over an area big as a backyard.

To deal with the problem, the county has spent \$451,570 hauling 616 loads of more



*A sludge mixture covers the ground outside a "digester" at the West Point plant on Feb. 22. The sludge spilled over the edge of the structure when a pump failed Feb. 9, causing parts of the plant to flood and damage equipment. (Johnny Andrews/The Seattle Times)*

than 4 million gallons of sludge in all from West Point to King County's South Plant in Renton for treatment.

"It has become a chronic problem — we can't figure out what the root cause is," Robert Waddle, operations manager for the Waste Water Treatment Division said of the foaming.

While common in digesters and normal to some extent, the foam challenge at West Point is different, both in the persistence and amount of the foam — so voluminous

it is taking up enough space in the digesters to reduce treatment capacity.

From bringing in experts, to making modifications to the digesters, and even just trucking three to seven loads of sludge away each day, managers have been working for months to fix or mitigate the problem. So far it has defied solution.

The problem didn't affect West Point's ability to meet its permit, or cause environmental damage beyond smells and mess, Waddle said. "It's an operational issue," he said.

Trucking costs have somewhat been offset by reduced costs for cleanup at West Point and increased sales of methane gas from South Plant because it is processing more sludge.

But some Metropolitan King County Council members said they were vexed no one told them about it. "They should have at least alerted us," said Kathy Lambert, chairwoman of the Regional Water Quality Committee, local officials from around Seattle and King County charged with overseeing wastewater issues.



*Pipes are covered in a sludge mixture at the West Point treatment plant last month. (Johnny Andrews/The Seattle Times)*

## Unprecedented flood

Then came the flood last month that destroyed half the plant.

Repairs and figuring out what caused the flood — so far electrical and equipment failures are implicated — has made foam in the digesters the least of anyone's worries. Right now, they are sweating getting them working at all.

Starting over after an event as profound as this flood is unprecedented at the plant.

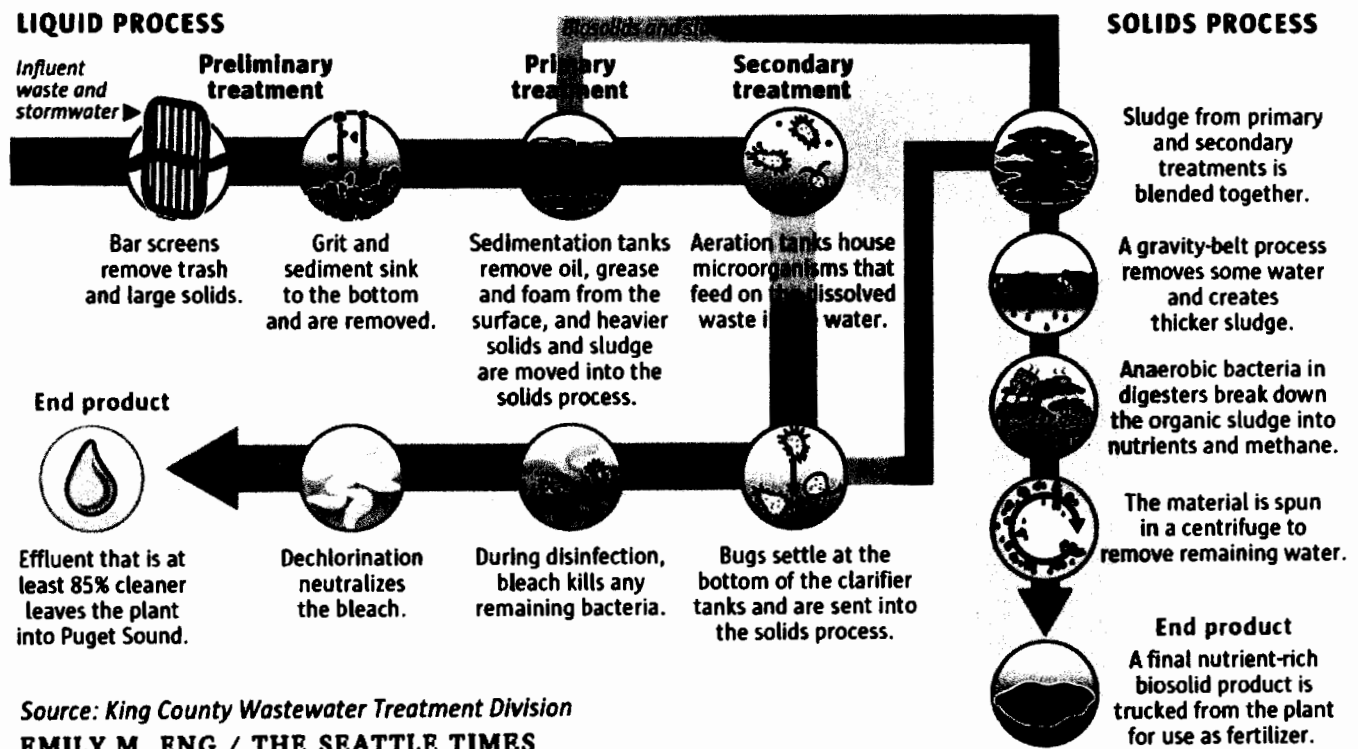
The flood took out boilers that heat the digesters, so the bugs have been cold. It also killed the pumps and other equipment that carries the sludge that is the bugs' food to the digesters. So the bugs are starving.

And now plant managers who aren't really sure what had been wrong with the digesters for months must revive them before the plant can be put back in

operation.

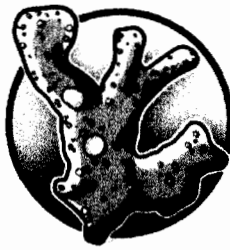
## Cleaning wastewater takes the work of equipment and bugs

Beneficial microorganisms do about half the work cleaning wastewater at the West Point treatment plant. Getting the bugs back in shape is critical to restarting the plant, which was damaged in a February flood.



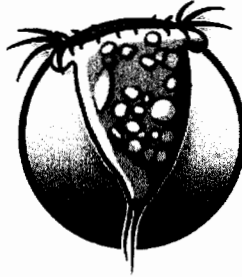
Source: King County Wastewater Treatment Division  
EMILY M. ENG / THE SEATTLE TIMES

### Aerobic bugs at work in secondary treatment



*Amoeba proteus*

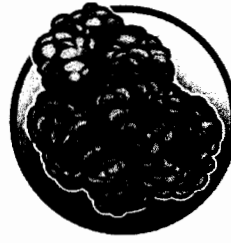
High presence during recovery from toxic discharge or low oxygen levels, amoebas indicate an unstable wastewater environment and unhealthy sludge.



*Vorticella sp.*

High presence of these stalked ciliates indicates stable and mature bacterial clusters and a healthy sludge.

### Anaerobic bugs at work in digesters



*Methanosarcina sp.*

These methane-producing organisms live in diverse anaerobic environments.



*Lactobacillus sp.*

These fermenting bacteria secrete organic acids and enzymes that degrade complex organic matter into simpler methane and carbon dioxide.

Source: King County Wastewater Treatment Division

EMILY M. ENG / THE SEATTLE TIMES

The digesters, at the end of the solids-management chain, have got to be working before primary treatment, at the front, or secondary, in the middle, can be started. Because without the digesters, there is nowhere to put the solids coming out of the plant.

It wasn't until nearly a month after the flood that managers got one of the boilers working again. Now with a little bit of heat, they are hoping the bugs will slowly recover. But it's a tricky process.



Eugene Sugita, process-control supervisor at West Point. (Steve Ringman/The Seattle Times)

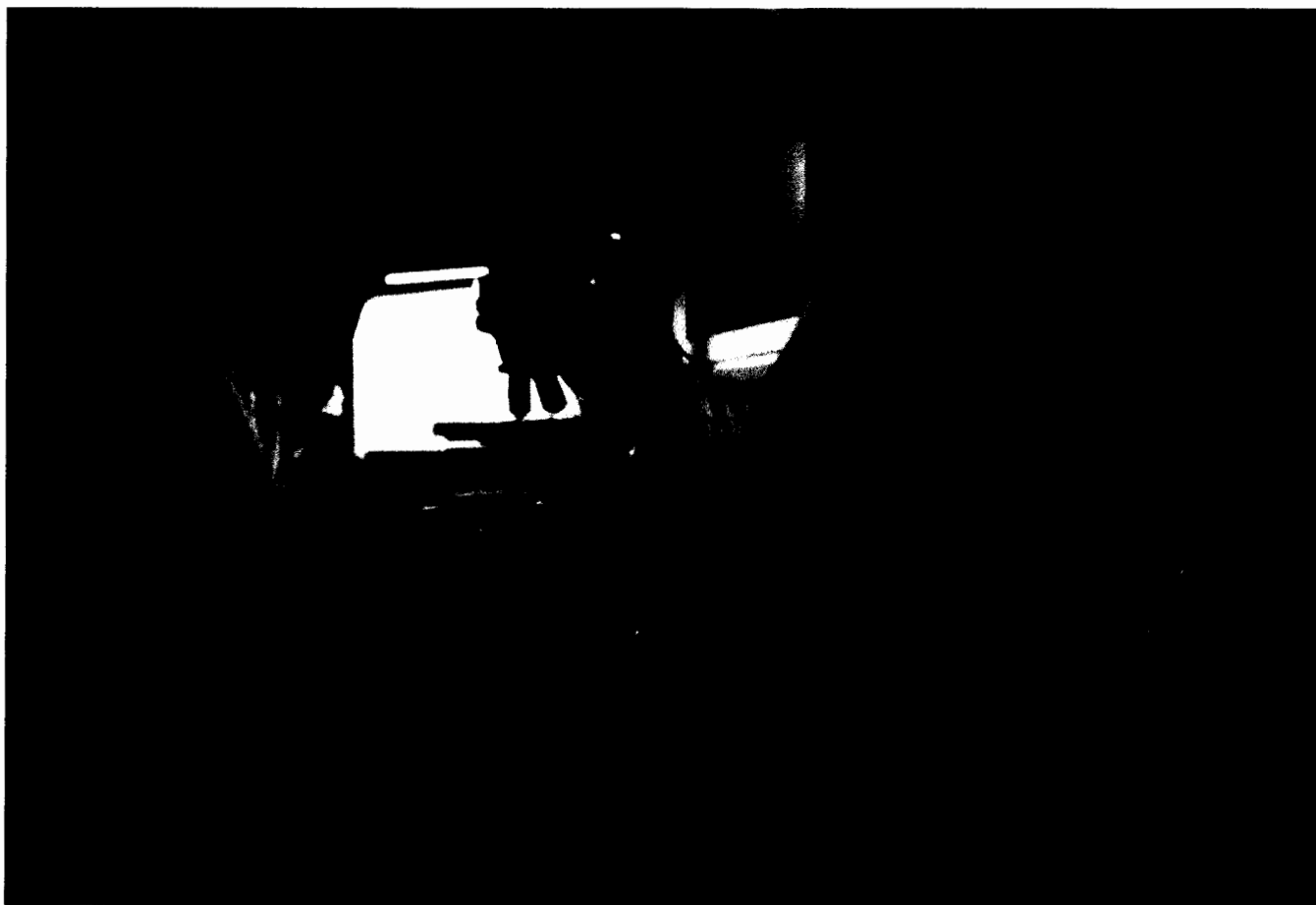
"It's kind of uncharted territory for us," said Eugene Sugita, process-control supervisor at West Point. It's his job, working with two teams of scientific and biological consultants brought in to help, to revive the bugs.

And, not unlike your own gut, a shocked and upset system can take weeks to set right.

In the worst case, the bugs will go septic —

die and rot.

If that happens, the next step would be to reseed with fresh sludge, to start over and build up populations of healthy bugs, ready to work. That would add delay, costing more money and continuing the dirty flow into Puget Sound even longer.



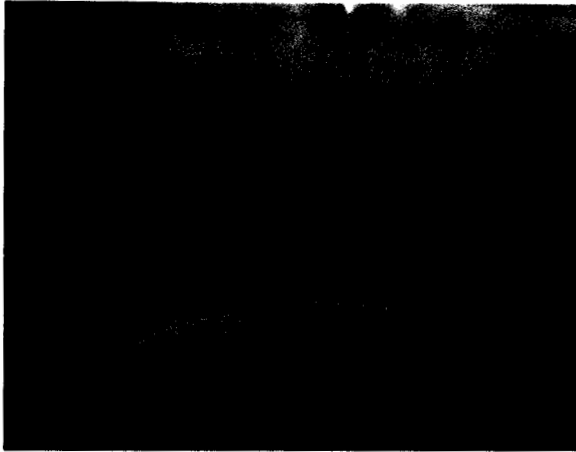
*Phuong Truong, lab supervisor at the plant, earlier this month examines an image of the microorganisms that clean wastewater. (Steve Ringman/The Seattle Times)*

## Treatment clarifiers

A microscope slide on a recent morning offered a glimpse inside one of West Point's secondary-treatment clarifiers, where the results of a plant out of whack were telling. The animals on the screen were not moving much and populations were nowhere near as numerous or diverse as they should be.

Meanwhile the primary system — where wastewater is usually screened of trash

and grit and settled to drop out a portion of the solids — is disabled. Because of damage to pumps, motors, electrical panels and more, the plant is only screening out trash, minimally settling the incoming flow, and disinfecting and dechlorinating the wastewater before discharging it into Puget Sound from the plant's deep-water outfall.



*This aerial photograph from 1963 shows the site of the sewage-treatment plant to be built at West Point. The arrow points to the old raw-sewage outfall the plant replaced. (Seattle Times archive)*

The discharge is required to be 85 percent clean under the state permit, but right now on a good day it is about 30 percent clean for solids.

Water sampled at the plant on a recent day before and after treatment looked virtually the same. It's a stunner at a plant that for 14 straight years won platinum awards for perfect permit compliance.

Pressure to bring the plant back to normal as quickly as possible is enormous. Workers have been at it around the clock since the flood.

Waddle, the operations manager, said so far he has no indication the bugs in the digesters have died — or gone sour, as they say in the business. And he hopes daily light feedings and air pumped in tanks in the secondary system will keep those bugs alive, too. "They are resilient," he said.

But no one will really know what they are facing in terms of the time it will take to get to full recovery at the plant until the digesters can be warmed enough to attempt to restart the plant, and coax the bugs slowly, carefully into action.

"We are hoping it comes back," Sugita said of the bugs' essential work. "We are hoping it's quick. But we won't know until we start."





*A West Point lab worker holds samples of the wastewater that flows into (right) and out of (left) the West Point Treatment plant on March 2. The similarity between the samples shows how the plant's ability to treat wastewater has been compromised. (Steve Ringman/The Seattle Times)*

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# **A Review of Select PCB Source Tracing Programs**

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July 2016



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SPU also summarizes data in the form of a boxplot to enable comparisons between drainage systems to assess for relatively elevated levels of contaminants. An example boxplot for PCBs is presented in Figure 7 (City of Seattle 2015).

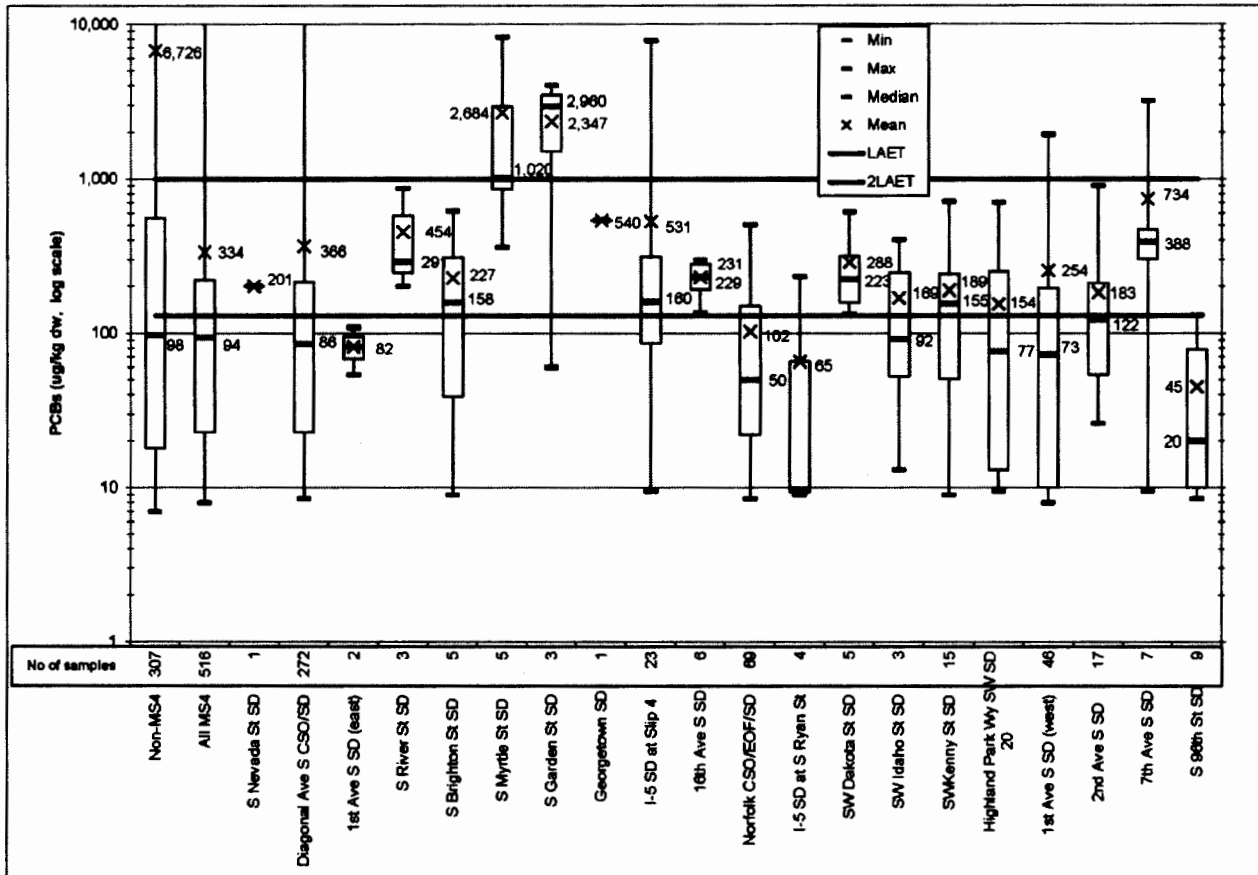


Figure 7. Example box plot of PCB concentrations across LDW storm drain locations (Figure from City of Seattle 2016, pers. comm.)

### Business Inspection Program

Seattle's business inspection program supplements the source tracing program in the LDW by identifying pollution-generating activities at local businesses that may be impacting the City of Seattle MS4 and by collecting samples to confirm whether contaminants are entering the private and public drainage systems. Inspections address a variety of pollutants, including PCBs.

The inspection program is also an integral part of SPU's overall source control program in the LDW as it ensures the pollution prevention requirements specified in Seattle's Stormwater Code (SMC 22.800-808) and Source Control Manual are implemented. The Stormwater Code requires all responsible parties to implement and maintain source controls to prevent or minimize the amount of pollution leaving a site or property. It also establishes basic stormwater requirements for all real property in the City of Seattle and

identifies additional requirements for specific pollution-generating activities. It also gives SPU the authority to inspect businesses to evaluate, and when required, enforce compliance with the code.

As previously indicated, SPU has three to four business inspectors and conducts approximately 200 to 300 business inspections per year in the LDW. All of the approximately 1,200 businesses that have potential to discharge pollutants to the City of Seattle MS4 in the LDW have been inspected at least once, and many have been inspected multiple times. Businesses are ranked after each inspection cycle based on the severity of issues found and potential to pollute. High priority businesses are inspected every two years; medium every four years, and low every six years.

### **Summary of Findings**

SPU's source tracing program has identified several PCB sources to storm drains which contribute to the LDW Superfund site. Two cases are described below.

#### **Rainier Commons**

Rainier Commons is a mixed use development of lofts, warehouse, and storage spaces which occupies the former Rainier Brewery Site at 3100 Airport Way South. While conducting routine sampling in 2004, SPU detected 17,500 µg/Kg PCBs in sediment from a catch basin on Airport Way South (RCB37 on Figure 8) (City of Seattle 2015). This catch basin receives runoff from a relatively small area along Airport Way S, and the adjacent Rainier Commons property. SPU subsequently found 17,000 to 23,000 µg/Kg PCBs in onsite catch basins RCBSTEV1 and RCBSTEV4 in the parking lot of Rainier Commons and found 2,200,000 µg/Kg PCBs in a trench drain located in a drive-through area on the property, all of which discharge to the city-owned drainage system on Airport Way South. The source of PCBs was later traced to exterior building paint, which contained up to 213,000,000 µg/Kg PCBs (NVL 2012).

In 2008, after negotiations between Rainier Commons, King County, and Ecology, SPU hired a contractor to clean the onsite catch basins and drainage system as well as the city-owned drainage lines on Airport Way South that were affected. Cleaning costs were shared by SPU and Rainier Commons.

Rainier Commons installed filter socks and material in their onsite drainage system to trap PCBs onsite. SPU continued to sample the catch basins and maintenance holes in the city-owned drainage system on Airport Way South. In 2012, 7,300 µg/Kg PCBs were found in the city-owned system and 8,200-12,400 µg/Kg PCBs were found in the onsite catch basins. SPU required Rainier Commons to jet and clean the on-site storm drains and city-owned lines on Airport Way South. Cleaning was completed in early 2013.

The Rainier Commons property became a TSCA site under EPA authority after property owners detected up to 2,300,000 µg/Kg PCBs in their exterior paint in 2005 (WDOH 2010). Subsequent testing in 2009 found 10,490,000 µg/Kg in paint chips from the building

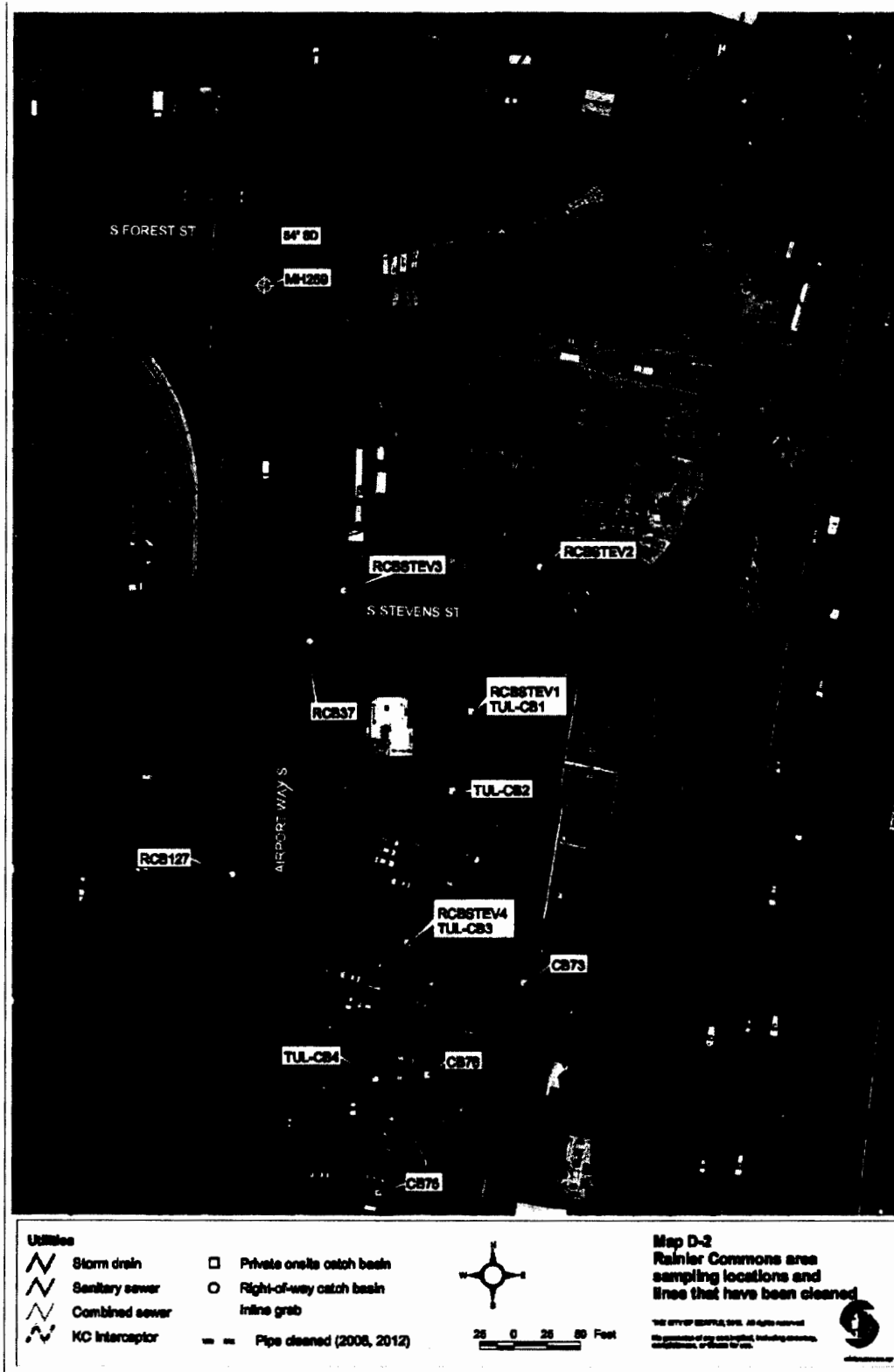


Figure 8. Catch basin and inline sediment sampling locations in the vicinity of Rainier Commons (Figure from City of Seattle 2015).

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Number 23  
December 2004

## Pollution Prevention in Painting and Coating Operations

Most products require some type of coating such as paint, stain or sealer. Because the use of coatings is so widespread, there is great potential for both environmental benefit and cost savings through pollution prevention. Source reduction and recycling techniques can reduce hazardous and solid waste generation, reduce air emissions, reduce the use of raw materials and conserve water. An on-site assessment of a coating operation may be the best way to reveal opportunities to reduce waste generation and costs through pollution prevention.

### Start with Surface Preparation

Most products require a preparation or cleaning step prior to painting. This step is commonly called *pretreatment* for new products and *paint stripping* for products that need to be reworked.

### Pretreatment

For waste reduction when pretreating new parts, the first step is to assess the cleanliness of the parts. To what degree are the surfaces contaminated with substances such as oil from machining or dirt from manufacturing? An important part of the assessment is to determine the sources of contamination.

The next step is to determine the cleanliness level or standard needed to satisfy the pretreatment process. Once the contamination sources are identified and cleanliness standards are set, determine whether some or all contamination sources can be eliminated. For example, it may be possible to eliminate finger oil contamination through the use of gloves in areas of parts handling. Gloves can be made of lint-free material,

or lint can be removed with a dry cloth. If contamination cannot be reduced enough through process changes, cleaning methods must be assessed.

Petroleum-based solvents have traditionally been used as cleaning agents. However, environmental concerns and regulations affecting use of these solvents have caused many companies to find alternative cleaning agents.

There are numerous "drop-in" replacements for highly volatile organic solvents in a cleaning operation. Substitutes may include low VOC solvents, aqueous cleaners such as alkaline or acid cleaners or detergent/water solutions, and numerous abrasive cleaning systems. Abrasive cleaning systems offer a wide range of cleaning media from CO<sub>2</sub> pellets to baking soda. Important factors in the design of the new cleaning system include the nature of the contamination, the substrate to be cleaned and the degree of cleanliness required.

Another pretreatment method often used in the surface preparation of metal parts is phosphatizing. Some newer coating methodologies exist which may eliminate the need to phosphatize prior to subsequent coating steps. A secondary waste reduction option for phosphatizing is reduced water use.

### Paint Removal

When repainting a part, the old paint often must be removed prior to application of the new paint coat. The waste reduction assessment should start by examining what causes the need for repainting: inadequate initial part preparation; defects in coating application; equipment problems; or coating damage due to improper handling. Reducing the need for repainting has a direct effect on

the volume of waste generated from paint removal. Once the need for paint stripping has been reduced to a minimum, alternate paint stripping approaches can be considered.

Key concerns are the type and volume of waste produced. Chemical stripping has been commonly used in a number of applications, but alternate methods that are less toxic and less costly are readily available. For example, an Ohio military facility was able to replace chemical stripping with plastic media blasting.

Paint-stripping technologies that are alternatives to chemicals include: abrasive blasting with a wide variety of materials; mechanical removal using scrapers, wire brushes and sand paper; and extremely high-pressure water or air.

Key factors that must be considered when selecting a paint-stripping method include: potential for cross-media transfer; the characteristics of the substrate to be stripped; the type of paint to be removed; and the volume and type of waste produced. Waste type and volume can have a major impact on cost-benefits associated with a change. If material substitution is not considered carefully, a combination of removed paint and chemical stripper may require disposal as a hazardous waste.

### Paint and Painting Equipment

Once parts are ready to be painted, the type of coating material and application method selected have a major impact on *transfer efficiency*. Transfer efficiency is the amount of paint solids that adhere to the object being painted, divided by the amount of paint applied or used. High transfer rates offer financial incentives by reducing the amount of





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# Pollution Prevention in Painting and Coating Operations

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paint wasted while minimizing solid, liquid and air emissions. Simply stated, transfer efficiency measures how much paint makes it from the paint can or drum onto the surface being painted. One of the key considerations in paint selection should be the solids content. The solids content of a coating directly correlates to the surface area that the coating will cover. Therefore the true cost of a coating must be evaluated by the surface area/number of parts that a coating will cover (see PPRC under *References & Resources*).

In most spray painting applications, liquid paint is converted to an atomized spray in order to coat the object being painted. Differences in spray painting equipment are based on how the equipment atomizes paint. The more highly atomized the paint, the more likely transfer efficiency is to decrease. Highly atomized paint spray can more readily drift away from the painting surface due to air currents and gravity.

To achieve the best transfer efficiency, it is advisable to study the application equipment available and actually evaluate equipment performance using each coating material. Because each application equipment combination has its own characteristics, the advantages and disadvantages must be weighed against the coating specifications set for a particular product.

The viscosity of the paint may need adjustment before it can be sprayed. This is accomplished by reduction with organic solvents, or with water for waterborne coatings or with heat. Using solvents for viscosity reduction requires the purchase of additional materials and increases air emissions. Benefits from the purchase of paint heaters include lower solvent usage, lower solvent emissions, more consistent viscosities, and faster curing rates (see SBEAP under *References & Resources*).

## Spray Application Methods

**Conventional Spray** - This technology, which has changed very little in the last 40 years, uses air at high pressure (40 - 70 pounds per square inch [psi]) to atomize a liquefied stream of paint.

A major disadvantage of this technique is that along with a high degree of atomization comes a spray that is very fine and highly susceptible to overspray, resulting in more paint waste and less transfer efficiency. The solvent in the paint is also highly atomized, along with the paint solids, meaning that volatile organic compound (VOC) emissions from any solvent in the paint are increased. Economically, the higher labor and material costs of this method have been the driving force in developing newer and more efficient technologies listed below.

**High-Volume/Low-Pressure (HVLP)** - As the name suggests, a high volume of air at low pressure is used to atomize paint. The defined air-pressure limit for HVLP is 10 psi at the center of the air cap on the spray gun. It is this reduced gun spray energy level that reduces overspray and improves transfer efficiency. Generally, fluid delivery rates up to 10 ounces per minute with low viscosity paint will work best with the HVLP gun.

**Airless** - This is a method of atomizing paint without the use of compressed air. The paint is pumped at high pressure through a small opening at the spray tip to achieve atomization. Adjustments in airless spraying are made by adjusting the viscosity or the system pressure. This method has higher transfer efficiencies than conventional spray. Many high-viscosity coatings can be applied without costly solvent thinning. Also, this method allows for rapid application of a heavy paint coat, which is useful for keeping up with a fast-moving painting line.

**Air-Assisted** - This is a spraying system that helps or "assists" airless systems by using supplemental air jets to guide the paint spray and boost the level of atomization. Air-assisted airless technology combines the best characteristics of both air and airless spray. Benefits include substantial material savings and reduced overspray when compared to conventional air spray, and improved transfer efficiency and finishing appearance when compared to airless technology. The ability to reduce the fluid pressure from airless is the primary factor in the increased finish quality. Operator technique also is enhanced as the application rate is reduced and the operator can more easily coat the product uniformly.

**Electrostatics** - With this method, the paint and the part are given opposite electrical charges. The result is that transfer efficiency is increased because the paint is drawn to the part by an electric field. As a result, paint spray is less susceptible to drafts and air currents that increase overspray. Even water-based paints can be applied with an electrostatic charge in some cases.

**Rotary Atomization** - This application system atomizes paint by dropping a stream of liquid on a disk or bell-shaped object spinning at high speed. Rotary atomizers utilize electrostatics to attract paint to the part. Rotary atomization is useful for high-viscosity paints. This process can create a spray without use of thinner and tends to have high transfer efficiency. However, the equipment needed for this type of application is very specialized and usually requires a major conversion of a painting line.

## Coating Types

**Organic Solvent-Based** - This is the older or traditional type of painting material, typically containing about 30 percent solids with a relatively high organic-solvent content. While this coating material is one of the most versatile, its low solid content and high

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percentage of solvent carrier can cause it to have low overall (solids) transfer efficiency. To get the required coverage, more material must be sprayed compared to materials with higher solids content and lower VOC emissions (see NEWMOA under *References & Resources*).

**High-Solids** - This paint type has a higher percentage of paint solids and a lower percentage of solvent carrier. Overall transfer efficiency tends to be better than traditional solvent-based paint. The increased solids content means that fewer applications are needed to get the required film thickness. Air emissions from the solvent are generally lower due to reduced organic solvent content. However, a paint heater may be required to reduce viscosity.

**Waterborne** - These paint types typically have a high solids content, utilize water as the carrier, and therefore have much lower organic-solvent content. Many of the traditional solvent-based paints have been reformulated into waterborne alternative coatings. Advantages of these paint types include reduced VOC emissions, increased durability, reduced fire hazard, minimized or eliminated hazardous waste disposal and easy cleanup. However, using a water-borne coating may require stainless steel components in the preparation and delivery areas, a cleaner surface, longer drying times, increased oven temperatures and a temperature-controlled paint storage area. Waterborne coating technology is one of the fastest growing markets today.

**Powder Coating** - These coatings use 100 percent resin paint solids in dry, powdered form which must cure in an oven. Powder coating can provide a high-quality, durable, corrosion-resistant coating. There are little to no VOC emissions, hazardous overspray wastes or wastewater sludges. With powder coating it is also possible to collect the dry coating material that doesn't stick to the part and reuse it. Powder coaters often achieve very high transfer efficien-

cies and can gain a significant economic advantage over traditional coating operations.

Powder coating does require specialized application equipment using electrostatic charges to apply the material. Its use also means that the substrate must be able to tolerate varying curing temperatures. However, powder coating formulations are available to meet a broad spectrum of manufacturing needs.

**Catalyzed or Two-Component** - These coatings are created by mixing two low-viscosity liquids just before entering the application system. One liquid contains reactive resins and the other contains a catalyst that promotes polymerization of the resins. These coatings eliminate or reduce solvents and cure at low temperatures.

However, it is important to remember that catalysts and paint components may be hazardous themselves and create a different set of emission and exposure problems than those of organic solvents. Catalyzed painting also means that more material may be used if strict attention is not paid to the paint batch life.

**Radiation Cured - Ultraviolet (UV), Electron Beam (EB), and Infrared (IR)** coatings use electromagnetic radiation to cure. These coatings typically have lower VOC content than conventional coatings, require smaller ovens, and allow for increased production rates due to shorter curing period. The shape of the part will affect the curing; flat surfaces are easiest to cure. Capital investments are usually higher than conventional ovens and the cost of the raw material coating is higher.

**Water-Based** - These paint types typically have a high solids content, utilize water as the solvent, and have very low or no organic-solvent content. Advantages of these paint types include reduced VOC emissions, reduced fire hazard, minimized or eliminated hazardous waste disposal and easy cleanup. However, using a water-based coating

may require stainless steel components in the preparation and delivery areas, a cleaner surface, longer drying times, increased oven temperatures and a temperature controlled paint storage area.

This partial listing of coating alternatives is only a summary of the technology available. Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) can provide further reference materials on these topics. Valuable information and hands-on training also can be obtained from equipment vendors and suppliers.

## Operator Technique and Training

The techniques spray painters use during application have a direct effect on transfer efficiency and waste reduction potential. The fundamentals of good spray technique consist of: the proper overlap of the spray pattern; the proper gun speed; the proper distance of the gun from the part; holding the gun perpendicular to the surface of the part; and triggering the gun at the beginning and end of each stroke.

The proper overlap of the spray patterns will be determined by the coating. Proper overlap may range from 50 percent to 80 percent. Greater overlap may result in wasted strokes, and less overlap may result in streaks.

Since the flow of coating from the gun is consistent, the speed of the gun as it is moved across the part should be consistent also. Steady gun speed will help obtain a uniform thickness of coating.

The distance of the gun from the part must also be consistent. Generally, this will be six to eight inches for non-electrostatic systems. Spray losses increase with distance as does solvent loss. This solvent loss is often adjusted by the addition of more solvent, further decreasing the coating efficiency. This does not correct the overall spray loss,

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and overspray increases in the spray booth.

Except for special conditions, the gun should be held perpendicular to the surface of the part. Arcing the gun for hard to reach areas wastes material by applying an uneven coat. This also may result in streaks. These areas should be compensated for by changing the positioning of the gun or of the operator.

If the trigger of the gun is not released at the end of a stroke, the material continues to flow and, when the gun changes direction, the momentary stopping of the gun results in an accumulation of coating material. To avoid this piling, the operator may spray past the edge of the surface, spraying material into the spray booth and wasting coating.

All manufacturer specifications should be checked to ensure that operators are using the proper technique for their equipment. Operator training will provide operators with knowledge of the various painting techniques needed to paint parts of different configurations. Different techniques are helpful when painting inside corners, outside corners, slender parts, round parts, flat parts, large parts or small parts.

A training program is a necessary component of any coating operation. The program may be presented as a means for obtaining a high quality finish while remaining economically competitive as a facility. The various fundamentals should not only be taught, but explained so operators understand the quality and economic advantages of good technique.

## Equipment Cleaning

When a painting process is completed or color change is needed, equipment cleaning is required. Equipment cleaning offers opportunities for reductions of waste and air emissions.

The ways in which cleaning solvents are utilized should be continually reviewed. Alternatives should be pursued toward traditional organic solvents such

as water for waterborne or water-based paints or low VOC cleaners for traditional paints. All organic solvents should be stored in covered containers when not in use. Leaving organic solvents in the open air creates unnecessary solvent waste and VOC emissions. In addition, a standard should be set to assure that used solvent is always recycled, preferably on-site.

For equipment that requires cleaning, methods that eliminate or minimize solvent use and reduce evaporation should be implemented wherever practical. Using a gun washer to clean spray guns is one example. A gun washer similar to a dishwasher. It is designed to hold a number of spray guns and related equipment, and cleans by circulating solvent inside a closed chamber. The result is rapid cleaning and extended cleaner life while reducing waste and the emissions from evaporation. Line cleaning is another area where use of special equipment can decrease cleaning time, improve efficiency of cleaner use and decrease waste. One method used to improve line cleaning efficiency is to introduce turbulence into the cleaner going through the line during cleaning. Equipment that forces alternating pulses of cleaner and compressed air is one way to accomplish this. Payback on this equipment can come from increased production output through more rapid color changes, as well as from material savings through decreased cleaner use.

## Cleaner Reuse Alternatives

On-site recycling of used cleaners is another way to reduce waste and save money. First, by reducing the amount of cleaner purchased, and second, by reducing disposal cost by reducing the volume of spent cleaner that must be sent off-site. Three common methods of cleaner recycling are settling, filtering, and distilling.

Settling is putting used cleaner in a container and letting the particulate matter settle out. The container should be designed to allow removal of solvent without shaking up the sludge which has settled out. Filtration equipment, which removes the particulate matter from cleaners is also available.

Distillation is another option for organic solvent users. Equipment is available in a variety of sizes. For more information, please refer to OCAPP's fact sheet "On-site Solvent Recycling Equipment."

## Alternative Solvents

Due to the increased need to reduce VOC emissions, alternative cleaning solvents are being used. They include aqueous formulations, renewables such as methyl soyate (from soy bean oil), dibasic esters and other lower VOC compounds. A variety of options to substitute high VOC organic solvents exists today.

For more information, contact OCAPP at [p2mail@epa.state.oh.us](mailto:p2mail@epa.state.oh.us), (800) 329-7518 or at [www.epa.state.oh.us/ocapp](http://www.epa.state.oh.us/ocapp).

## References & Resources

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